

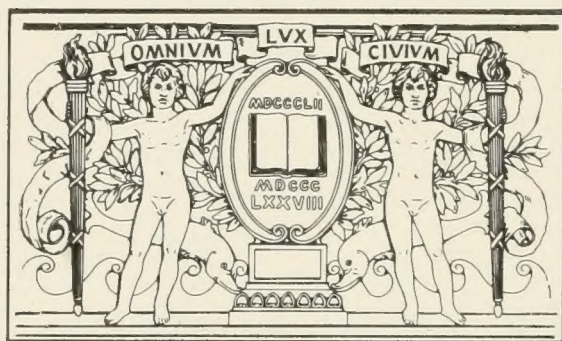
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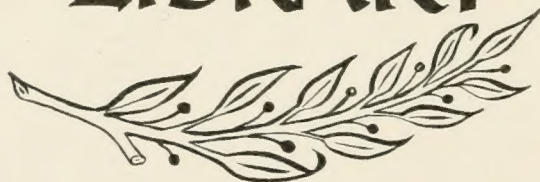
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# *Smithsonian Year*

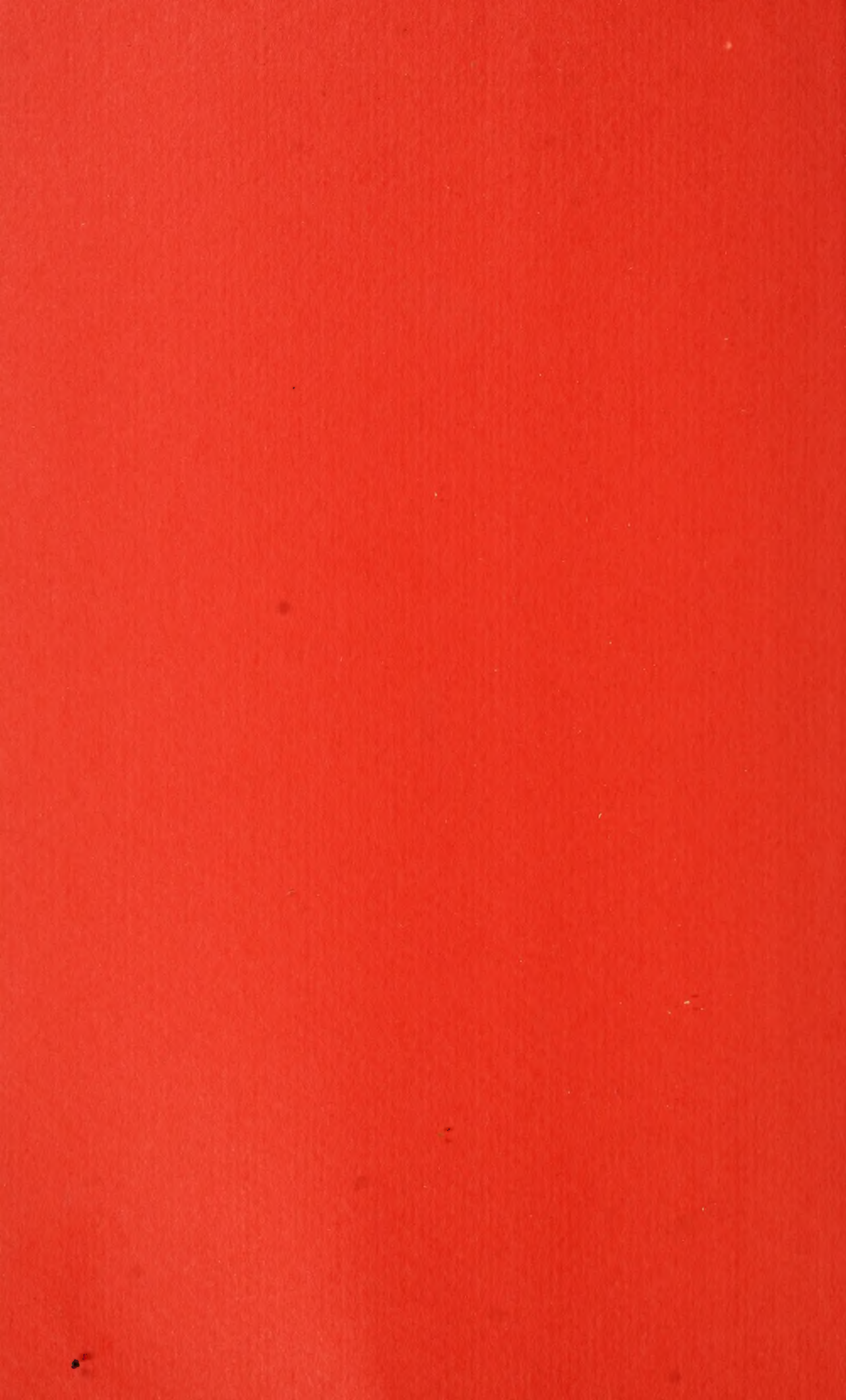
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# *Smithsonian Year • 1974*

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Secretary S. Dillon Ripley cuts an anniversary cake at a ceremony in the Smithsonian Castle on February 26, 1974, commemorating his decade of service as director of the Smithsonian Institution. Among others who joined in the celebration are former Secretary Alexander Wetmore, Mrs. Ripley (center), and Mrs. Reginald Bragonier.

# *Smithsonian Year • 1974*

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ANNUAL REPORT OF THE  
SMITHSONIAN INSTITUTION  
FOR THE YEAR ENDED  
JUNE 30, 1974



*Smithsonian Institution Press • City of Washington • 1974*



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## THE SMITHSONIAN INSTITUTION

The Smithsonian Institution was created by act of Congress in 1846 in accordance with the terms of the will of James Smithson of England, who in 1826 bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." After receiving the property and accepting the trust, Congress incorporated the Institution in an "establishment," whose statutory members are the President, the Vice President, the Chief Justice, and the heads of the executive departments, and vested responsibility for administering the trust in the Smithsonian Board of Regents.

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STATEMENT BY THE SECRETARY



Joseph Henry and his family in 1862 outside the Castle where he lived for twenty-nine years, in the park — the "people's park" — now the familiar Mall, and still the people's park.



# *A Decade of "Increase and Diffusion"*

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S. DILLON RIPLEY

THIS IS THE TENTH Annual Report of the Institution which I have had the honor to prepare. In these years it has been a surcease to find how stable the aspects of the Smithsonian have been which match the needs of the people. "Increase and diffusion," that tantalizing phrase, continues to be our watchword. We attempt to adhere steadily to certain goals, and to eschew transitory fads.

This past year in Washington has been one of a kind of misty suspension, like the haze that hangs over the river bottom in the early mornings spring and fall, in our famous marshes of reclaimed land, known as "Foggy Bottom." This curious state of suspense has been somewhat akin to sitting in an operating theatre, although the surgeons were invisible and the body only faintly lighted in a penumbral shade, waiting for the eclipse to go away. Day by day there were conflicting sounds, adumbrations which swirled about us through the medium of the news. The shadows lengthened during the year as if the operation was too long and the body might turn into a cadaver. But later the pall eased, we breathed again, realizing that the patient would recover, the body politic was alive after all. For in the process we all survived. The surgery had not really been directed entirely to any one person. It has been a kind of psychosurgery or mental vivisection directed at us all, and in the end we may have emerged better, we hope, for the ordeal. From the Smithsonian towers we can document the events, hopeful that in time we can present an objective vision of this segment of the history of our times for those who come to see and learn from our "diffusion."

In science the Smithsonian's research, our "increase," continues in the study of the natural world about us, the objects of creation on the land, the seas, and the phenomena they enclose; and the planets, the

measuring of our Earth against them, the Sun and its effect upon us, and the steady tabulation of the phenomena of outer space.

In history we continue with our encyclopaedic endeavors in the history of American culture and the preservation of that history, whether by conserving the objects or the processes of creation which they represent.

In art we continue to follow our mandate to preserve, collect, exhibit, and encourage the study of American art, its roots in the rest of the world, and its current evolution. With the present interest of our government in sponsoring and supporting the arts and humanities, a new partnership, in theme at least, begins to emerge. Although separate, the Smithsonian maintains common interests and close ties with the National Endowments for the Arts and for the Humanities. Both share common tasks, and both work together progressively through the Federal Council on the Arts and the Humanities. This is especially important in the forthcoming events of the Bicentennial years. In addition there is much to interest the Endowments in the new art museum opening on the Mall in October, 1974, and in the burgeoning studies in art and art history being undertaken by the various Smithsonian enterprises, as well as in the living Folk Festivals. What a celebration of the American Spirit these Endowments have become, and how vital their part in encouraging American creativity as well as cultural history and research!

All of which is to say that like the Endowments the Smithsonian is alive and well, whether in science or in art, and that each year its purposes and its services are becoming increasingly apparent and comprehensible to our people. As the Institution becomes more understood so the morale of its staff improves. We all realize the importance to our citizens of what we are doing, and this improves our own quality and our dedication. So be it.

As we become more important to people, our visitors increase, our memberships in the Associates increase, our magazine and related publications and benefits reach out further and further (our memberships now are 622,000) and so our responsibilities to be true to our goals and to increase and diffuse knowledge become more evident. Our obligations to ourselves for standards and quality have not changed, but these very traditions of ours become more visible. As this happens, we pay a kind of penalty—that of being noticed. For years I had thought many of the things that the Smithsonian just

went on doing quietly and competently were underappreciated and in effect undervalued. Our knowledge about the environment of the planet and our knowledge of the solar system seemed to me so comprehensive that I was disturbed that more people did not know about all this, or that only those in cloistered circles were party to our work and failed to noise it abroad. Now with our new exposure there is by contrast a penalty to popularity. It is what I used to call "joining the cold shower club." By becoming noticed one becomes the subject of curiosity, sometimes the object of criticism, or even envy (if doing things well). We are, I am sure, prepared to pay the penalty for continuing to do well what we are charged with doing, and to that we can say, amen.

Suffice it to affirm that we will continue to prepare to play host to an increment of several million visitors a year who come in spite of the obstacles of traffic, outmoded transportation, increasing costs, and stultifying living and travel handicaps. And we will continue to fight for their right to come in spite of obstacles placed in their way by time and circumstance. For we know that it is in the interests of the people and their increasing desire to know themselves that they should come and see our Institution, and we know that in this we have the support and the enthusiasm of the Congress who continue to find the work of the Smithsonian refreshing.<sup>1</sup>

Last year I wrote a good deal about the Bicentennial and the Smithsonian's essential activities in the long-past Centennial of 1876. Meanwhile, sparked by the new administration under John Warner, the 1976 Bicentennial approaches with every breath we breathe, and our own preparations for '76 wax apace. Our first major Portrait Gallery exhibition has opened to critical acclaim. Our renovations of the Arts and Industries Building have started in order to make it an evoc-

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<sup>1</sup> Professor Wilcomb Washburn reminds me of a diary entry of Congressman Henry L. Dawes of Massachusetts who came to Washington to serve in 1852, and speaks of the Institution —

"The Smithsonian Institute is the noblest of all monuments ever erected in the United States. Washington lives in the affections and reverence of his countrymen justly before all others and the great monument going up to his memory is in a corresponding degree an object of interest. (The Washington Monument was still under construction.) But the Institute is at once a monument and an engine of power, a fountain of knowledge, a bulwark for the preservation of the liberties Washington bequeathed. It has been founded and is rising in grand lofty proportions 'for the diffusion of knowledge among men.' And so long as it shall fulfill its mission fears are idle — Man will be free."



ative setting of what the Centennial of 1876 was all about. Additionally we are planning on a strong effort to accommodate our visitors with guidance, information, food, protection, and a sense of welcome and enthusiastic reception.

A whole series of things—exhibits, happenings, publications, testaments to human curiosity, and just plain fun—will be awaiting them in 1976, not least of which will be an entire new museum dedicated to America's single and most salutary technological achievement, an achievement which has helped to expand and rework our culture in all its ramifications, the conquest of air and space. Can there be any insentient people alive today in this country who do not realize that the conquest of air, and now of space, has changed our perspectives, our culture, indeed our ethos? In essence increasingly rapid modes of flight have abolished time, pressed the concept of communications close to human tolerance through the continuing evolution of the computer, helped to abolish faith, and prepared us for a new and as yet uncharted way of viewing the human condition.

America, I hope, will be thinking of 2076 by the time the Bicentennial comes along. And in that connection we might as well have a look at the panorama showing how we reached our present predicament. Our untrammelled will to succeed, to better our style of life through our communication and transport, has put us where we are. We could call our Air and Space Museum last year's Pandora's Box, and looking in visualize what we had better do about next year's. For we have not stopped the clock in the past, and if we are to slow it down in the future we will have to realize what has been happening to make so much of that future inevitable. In his recent (1974) short book, Robert Heilbroner questions the continued hegemony of organized science under the present threat of a new Dark Age for our civilization. That we face the possibility of a new Dark Age in history is evident to many. As an ecologist, I have found the recent discussions of economists and social scientists on the subject of the interdependence of population trends and the use of natural resources, agriculture, industrial growth, and pollution, a kind of coming home to roost, neo-Malthusian thinking caught up with Volterra-Gause hypotheses of strategies of competition in nature. Heilbroner believes that science and technology have developed in an inimical manner to foster runaway population, cataclysmic wars, and environmental degradation without compensating restraints and standards, includ-

ing moral and ethical controls. He postulates that religion will and must rise again to insure the reawakening of civilization itself. As with a see-saw, he envisages science losing its paramountcy as religion arises once more. This to me is overly simplistic. An economist can afford perhaps to be an agnostic, but most philosophically inclined scientists—physicists (who perforce must be philosophers), molecular biologists, and the best of the ecologists—will tell you that they hold to an essential faith in laws of creation, which are indeed the moral and ethical presumption on which religion is based. Whatever limits to creation we may have plumbed, it is a popular fiction to assume that in the process scientists have destroyed our faith.

All of which is not to say that it is not worthwhile to have men of the caliber of Heilbroner, as social scientists, becoming aware of ecological principles. Jan Tinbergen, winner of the Nobel prize in economics, told me recently that he owed a great part of his somewhat unorthodox theoretical assumptions to new insights he had gained from his brother Nikolaas, a Nobel prize winner in biological medicine, who is a pioneer in the study of the behavior of animals under field conditions, away from laboratory controls, where they are guided by and demonstrate ecological principles. It is sad that the social sciences have classically paid so little attention to the broad truths of ecology.

In the past year we had the novel experience of the turning off of the taps which supply our gasoline pumps, and Americans—representing six percent of the world's population but conditioned to gobbling up nearly forty percent of the world's resources—are just now beginning to get the message. Our massive indifference to international bureaux and offices talking about one-world politics, economics, and world interdependence has been conditioned over the years by the perfect conviction that being an American is a natural condition which we assume carries with it all the perquisites of technological superiority over our fellow inhabitants of the planet. No matter that there are inequities in the United States itself—we know that also—but what many citizens, temporarily enraged by such inequities, overlook is our commonly held assumption, all of us, that the automobile and the open road, the shopping center, and the fantastic and dazzling distribution of material goods at all levels is a natural right. As Americans, either richer or poorer, we have it way over eighty percent of the rest of the people of the world.



Whether we deserve it all or not seldom gives us pause, although last winter's threat of gas rationing was at least a temporary aberration in the hiatus between winter holidays and summer vacation. Now that the gas taps have turned on again, it is easy to believe that all's right with the world once more. It is easy to forget the unpleasantness of the spectre of declining resources.

In this state of vague malaise the conviction has come to many younger and also minority group members that the survival of the Republic is uncertain. Whereas historians or political scientists glorified the successes of America, based on the application of intelligence, others such as Jean-François Revel now describe what is happening in America as a revolution, which indeed it is. But we can take heart in his definition of revolution, provided ethics survive, for in the process we may approach a truer mode of life and an understanding of what we are about. I have written before of what the Smithsonian could provide as a means of exhibiting this process of understanding. I feel it could be done in what I have called a Museum of the Family of Man, a synthesis of thinking about man's place in the universe.

People in the United States have come full circle in their ideas. Two generations ago and more the thought was that this new frontier, this boundless Nation, would serve as a melting pot wherein all would be remade into an indigenous American mold. Here all the nations would provide of their best, most daring, and adventurous spirits, who, in this heady atmosphere of opportunity, would become blended into what de Tocqueville and others thought of as the new American breed.

The romantic spirit, descendant of the philosophical idealism of the spirit of the revolutions, took no account of the remainder of the native Americans, that remnant which thoughtful men at the time of the Nation's Centennial had feared would have gone extinct by the twentieth century. Nor were the blacks or Mexican-Americans considered. Eighty years later, by the 1930s, the Indian population was recovering from its doldrums of the turn of the century, the Mexican and Latin American minorities were increasing in the Southwest and in the eastern urban centers, and the blacks—Raymond Pearl had prophesied that the black population would disappear for genetic reasons in two hundred years or so. Instead of homogenization we now, approaching our Bicentennial, celebrate ethnic diversity and



cultural pluralism. Whether our blacks or other minority types with recognizable physical features disappear or not is moot. Black is beautiful and the liberated American today eschews the melting pot and embraces the reawakened realization that traditions of old ways persist in the New World, that song, dance, drama, the arts, language—all the stuff of culture—continue to exist, to be perpetuated in strongly persistent patterns. We cannot entirely forget our cultural heritage even as a multiplicity of physical types remains permanent in our midst. Perhaps then we have learned a lesson that biologists of years ago would have been tempted to support, that blending inheritance is far more rare than the persistence of basic traits and types, and that cultural patterns mirror in their perseverance these physical verities.

Under the circumstances, it is appropriate that the Smithsonian, too, should come full circle. We can create a summing up of the American experience, a synthesis of all that we have learned, the interactions of man on this part of the planet, the interface between ourselves and our environment. A Museum of the Family of Man then would include certain demonstrable American themes, including the history of the United States folk, who had come here, when and how, and how this had changed the land and sea and air, its past and present face. Hopefully, such an illumination of our times could include, with the aid of computer systems and current technology, an informed projection of our evolution, both physically and culturally, into the future, our own "Brave New World."

More importantly, as my colleague Under Secretary Brooks has emphasized, such a museum must suggest the continuing process of man's evolution as a creator. As he phrases it, "From all the testaments of man's creativity, we can recognize at least two kinds of multi-millennial chains of men and women who have created things, techniques, or concepts relating to the physical world. The first kind is in its important phase pre-literate and inventive; it has evolved the basic physical conditions of human society and survival—as for instance the cultivation of grains, domestication of animals, shelter, mobility, etc. The second kind of succession is post-literate and conceptual; it has evolved understanding of the world, the universe, man's own nature, and the structures of thought itself. The two have common ground but different approaches to understanding, and deserve equal honor. They proceed in common from man's bio-psycho-

logical heritage—his visual brain, manual dexterity, capacity for use of symbols and language.”

To suggest the *process* means, of course, to avoid the static quality of museums encompassed in arrays of finite objects, but rather to formulate a kind of multimedia display, “engaging the viewer’s own processes of thought and imagination.” The process is a speed-up process too. From the unique fact that evolution provided the tools, man’s ability to communicate effectively, and the evolution of manual dexterity, has come the unfolding of brain integration in these functions. Each system has buffered and supported the other, developing an end product unlike any other known on the planet. Thus the diverging into the two types of creativity: the technologies of survival and the evolution of thought. In this latter aspect of creativity there are the social inventions: “elaborations upon the family, the tribe, the state, the organs of justice, legislation, administration, caste, class, trade, education, war.” Then there is the invention of social institutions, “and the creators who formulated social thought and promoted social action.” These historical creations are all rooted in man’s biological heritage as well, and of course have speeded up enormously along with the evolution of technology.

In any discussion of process it is instructive to speculate about the possibility, achieved five years ago, of landing a man on the moon. Although the technologies existed to create orbiting machines in space, James Webb has pointed out to me that the human factor, the men who could manipulate the machines effectively enough to land themselves on the lunar surface, and then blast off again to join up with their circling companion, must have been brought up from childhood in an atmosphere where the commonplaces of advanced technology all worked. Communication by telephone, for example, is randomly so taken for granted in the U.S.A., because the telephones work so relatively perfectly, that we are brought up and accustomed to have perfect transmittal of ideas or mechanical concepts in using them. We do not have to have meetings or conferences face to face. Our generations of people are thus habituated for learning and the transfer of vital information in a way that a considerable part of the rest of the world’s population is not, or has not been until very recently indeed. Thus the time lags implicit in technological conditioning and familiarity make for different phased levels of assimilation of the processes of learning. The chances, therefore, are that only



one particular segment of peoples or culture may be capable of landing on the moon at any one time. And I might add, at the risk of sounding complacent or overweening, that even the prospect of a perfect link-up in space as between the products of two cultures, our own and the U.S.S.R.'s, may be more difficult because of the background and training of the participants than our global strategists and politicians would wish.

This is one example of a truism in contemplating the history of the family of man. No one group or segment of man, through the biological and physical phenomena of geographical isolation, is exactly like any other at points in time, as well as through the panorama of history, thus horizontally as well as vertically in a diagrammatic sense. No museums have ever entirely encompassed all of the philosophical and moral and physical implications which have resulted in our complex world. It is a new way of looking at a subject that goes back to ideas expressed in the last century, vested in the creation of the Musée de l'Homme in Paris in 1877. Unfortunately the Musée de l'Homme was an anthropology museum, and as I have said elsewhere,<sup>2</sup> until very recently it had been thought, rather uncomfortably, that anthropology, being a kind of biological discipline, should concentrate on early man and the present so-called primitive races of man, leaving Western civilization to the classicists and the students of folk history and the decorative arts. This situation has now begun to change. In Washington we are thinking of drawing from everything that our museums, whether of natural history, history of science, culture and technology, or art museums, are exhibiting, each in its own way. We are concerned here with a new concept, a synthesis of the whole family of man and how it got that way.

Interestingly enough we are not alone in this idea. We claim no hegemony, of course. At the 1974 meeting of the International Council of Museums held in Copenhagen, Mme. Nelly Motrocilova of the Academy in Moscow, speaking on June 3rd, announced that the U.S.S.R. too was thinking of the creation of a Museum of Man. Suffice it to say that we shall be threshing out this concept over the next year or two with ourselves, our committees such as the Smithsonian Council, and individual colleagues, with the hope that eventu-

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<sup>2</sup> Ripley, Dillon. *The Sacred Grove*. New York: Simon and Schuster, 1969, p. 79.



ally we can present a plan to the Congress for a new kind of museum which could somehow embody the dreams of their constituencies across this land, the realization by people of the United States that their strength lies in the strength of their origins, their diversity and the pride, courage, and hope that this can and must give them. Let there be no despair then but a reasoned pride, measured with courage and tempered with the sobering responsibilities that such self-knowledge brings. The soothsayers and necromancers of today adjure the young to think of themselves first, to cultivate their *id*, to think first of "happiness" in a subjective sense. They have forgotten, and the young with them, that they are not alone, but that within themselves rests all the history of man.

The Institution's "increase," its research progress in history, the arts, and the sciences, is listed in *Smithsonian Year 1974*. Suffice it to say that both in astronomy and astrophysics, work under Director George Field is taking form in programs of great promise, particularly in regard to new observations of the Sun made during the flight of the Orbiting Space Laboratory in the past year. Additionally, successful research and construction proceeds in concert with the University of Arizona on the multiple-mirror telescope. In the National Museum of Natural History a vigorous new array of exhibits is in the planning stage under the direction of Dr. Porter Kier. Temperate and tropical environmental studies are being vigorously pursued at our stations in the United States as well as in Panama.

In the latter, significant efforts to enhance the staff as well as the inventory-taking capability of the stations should begin to narrow the gap between what we know about the New World tropics and what limits to tolerance they possess in the face of man's destructive abilities. For in the vast New World tropics where, contrary to conventional wisdom, perhaps only ten percent of the land is susceptible to agriculture, there is precious little time to measure the norms of the tropical environment. Human population pressure is seeing to that, be it for better or worse. Few biologists could argue that anything that is happening in the tropics today is for the better, but their voices will not be heard in the tendentious political clamour of the developing world. At the very least we hope that the data we gather will serve as a guide to the essential diversity of the tropical environment and as an indicator for the future of the riches we seem about to forsake so willfully. The recent remarks on May 29th by the new

President of Venezuela, Carlos Andres Perez, concerning that country's proposed national policy on conservation of natural resources are splendid, however. If Latin America, with some of the poorest soils in the world, could heed President Perez' speech then biologists could breathe easier.

Finally in the realm of science, a great step forward this past year has been the beginning of the National Zoo's breeding project and reserve at Front Royal, Virginia. Here is a conservation project in a superb setting, which we hope will become a model of its kind, with room for cooperation with zoological societies all over the country.

In history our staff has collected the Institution's first Pulitzer prize in the person of Professor Daniel Boorstin and his third volume on *The Americans: The Democratic Experience*. All of us can take pride in the outstanding historicoliterate achievements of this famous historian, who has resumed work as a Senior Historian after four busy years as Director of the National Museum of History and Technology. In this latter capacity he has been succeeded by another eminent historian, Professor Brooke Hindle, sometime Dean, Arts and Sciences, University College, at New York University, and head of that university's Department of History for many years. Mr. Hindle is particularly an historian of science, and his coming is a matter of great joy to all of us.

In the Museum of History and Technology this year we have also celebrated the creation of the Dwight D. Eisenhower Institute for Historical Research—a center for studies in the origins of war and peace, headed by Professor Forrest C. Pogue, one of the preeminent military historians of our time. This is a splendid augury for the National Armed Forces Museum Advisory Board and may well be its most salient contribution to the preservation of military history.

In the past year the Freer Gallery has celebrated its semicentennial with three splendid exhibitions accompanied by internationally attended symposia, as well as the publication of lucid and beautifully illustrated catalogues, and with the awarding of three Freer medals. No one could fail to be heartened by the renewed interest in Chinese, Japanese, and Islamic art which these exhibitions underscored. Over 200 scholars and students attended the colloquia, which were intensely interesting and of high scholarly caliber. A symptom of the universal importance placed on art in Japan was a special visit during his stay in Washington by Prime Minister K. Tanaka.







The National Portrait Gallery continued its striking series of historical exhibits with a splendid exhibition and accompanying historical resource document, a catalogue on the *Black Presence in the American Revolution*. Once again the Portrait Gallery has charted a new and authoritative course in untraveled seas. I believe it is obvious by now to most historians that this technique of exhibition and wholly definitive catalogues is a new and unsuspected teaching tool to remind us, as I have said earlier, that within us all resides the history of man.

The National Collection of Fine Arts has continued its imaginative program of exhibits, including a revealing one on the history of the plastic arts in recent time in the Pacific Northwest. I personally was much moved by the evidence from the paintings of the expression via palette tonalities of the difference between living in Oregon and in Washington. Even in abstracts or in interiors the painters were reflecting a subtle neo-tradition not only of style but of color, evidence of the mood and atmosphere, the light and color of the two States. What reflections cannot be drawn on the origins of ethnicity, of phenotypic differences, of cultural subspeciation in such happenings?

A delightful footnote to the history of American art was the exhibition of the work of "Lilly Martin Spencer: The Joys of Sentiment," the catalogue of which contains a brilliant introduction by Director Joshua Taylor. The NCA's collection of American portrait miniatures, one of the best in this country, was placed on permanent exhibition through the generosity of the Trustees of the Merrill Trust. A special gallery designated the "Doris M. Magowan Gallery of Portrait Miniatures" will exhibit these portrait miniatures for the first time.

The substantial completion of the Hirshhorn Museum and Sculpture Garden in this past year has signaled the arrival of the mammoth collections of art in Washington and their incipient debut in their new public setting, an event long awaited. We anticipate formally opening the museum on October 1, 1974. This museum should help to illuminate Joseph Henry's theme that the Mall is indeed a people's park, a place of delight for citizens. The gloomy myths about the sacred sword and the hallowed ground were no more a part of the original concept of the Republic than any other Victorian

conceits. The Mall is for all of the citizens of the United States and by no means a cemetery.

In this past year an additional West Coast branch of the Archives of American Art has been opened by our energetic director, William Woolfenden, and the Presidency has been assumed by Dr. Irving Burton after three years of devoted work by Howard Lipman, who now becomes President of the Board of the Whitney Museum of American Art in New York. We are deeply grateful to all these able workers in the collation of the history of American art.

The Cooper-Hewitt Museum of Decorative Arts and Design in New York continues with its reconstruction plans for the Carnegie Mansion, for which over \$1 million has already been raised. Under the energetic chairmanship of Lewis A. Lapham, who has succeeded Thomas J. Watson, Jr., as Chairman of the National Associates Board, a subcommittee has been formed to enlist the support of New York members, residents, and their wives to complete the reconstruction of the site for our National Museum of Design.

Nearer at home our management enterprises and our reexamination of our structure proceed apace. In any sensible organization there must come periodic assessments of where one is and where one is going. In the process of keeping track of our "fragmented parts which make a whole," as Joshua Taylor has described us, we periodically check the pace of our development. Are we running ourselves ragged with too many activities? Can we achieve the discipline to confine ourselves to our stated goals before natural accumulations run away with us? For in the sense of our museums and collections, the Smithsonian is a growth industry. Perhaps museums are one of the only legitimate growth industries left? I think we can manage to stay the course by perceiving common themes that unite us intellectually, and not simply approach efficient controls as an administrative function. For in our hope to "increase and diffuse knowledge among men" lies an ideal as well as a responsible charge. We monitor the processes continually, firm in our determination to illuminate that ideal.

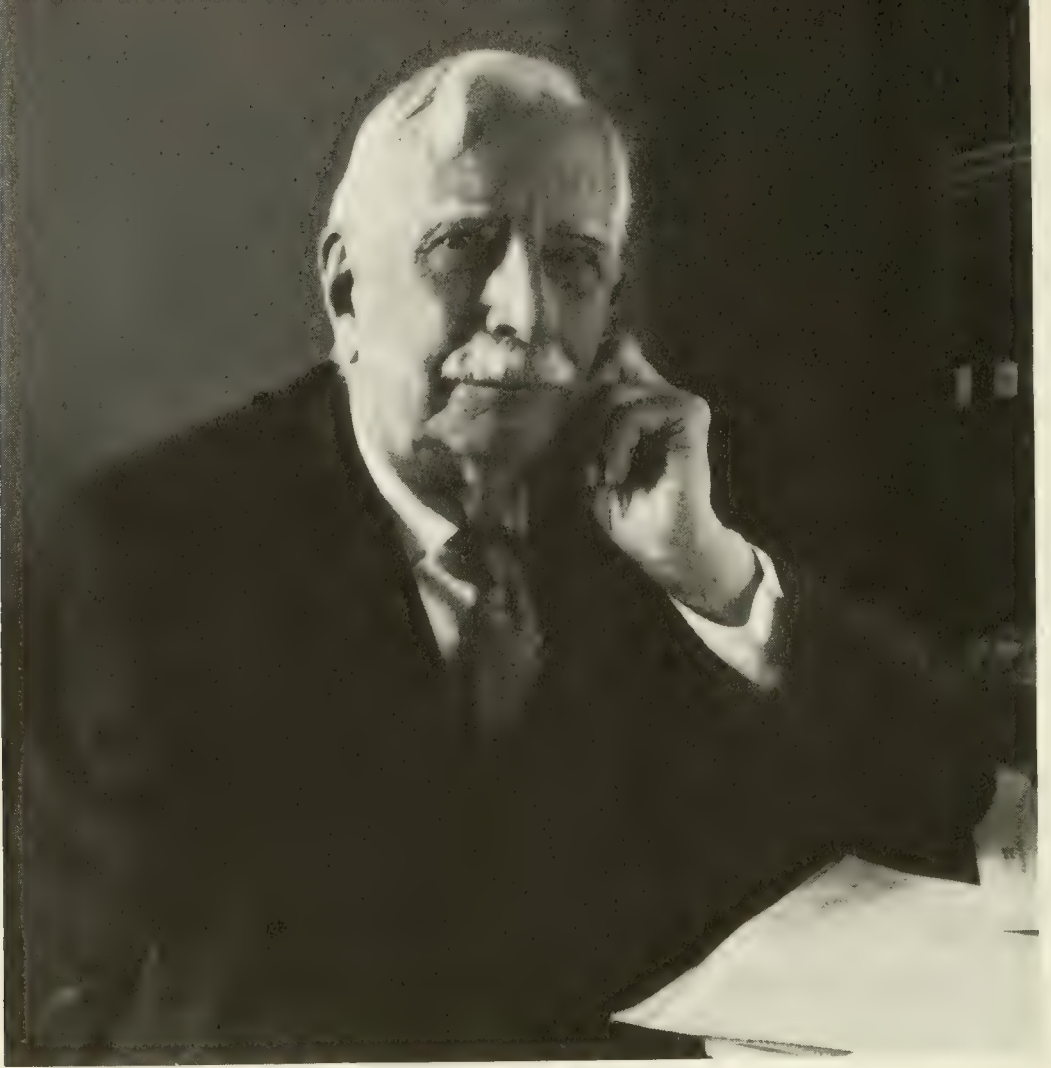
In the realm of "diffusion," this past year has seen the Smithsonian undertake a new series of television programs under the direction of David Wolper, with sponsorship by the du Pont Company. The first program on matters of Smithsonian interest is expected to be re-

leased in November, 1974. In all of these enterprises with new attempts to increase and diffuse knowledge an enormous amount of credit is due to the staff of this Institution, which in its many ramifications continues its devotion and effective assistance to our cause at all levels.

As part of the Smithsonian Product Development program, reports indicate that in addition to previously approved craft items, there will be authentic reproductions of pewter, silver, and textiles, all based on existing Smithsonian documentation.

During the past year I have lost two of my friends. For the ten years of my tenure I have had the perfect conviction of longevity, secure in the belief that my three predecessors would be continually available as counsellors and reminders of the continuity of our hopes for the Institution. As I have noted in *Smithsonian* (November, 1973, and February, 1974), Dr. Wetmore and I have lost our two colleagues, Dr. Leonard Carmichael, my predecessor as Secretary, on September 16, 1973, and Dr. Charles G. Abbot, his immediate predecessor as Secretary, on December 17, 1973. Together we had seemed a continuous chain, reaching back in time to when the Republic itself was less than a century old. They had helped and encouraged me to celebrate our own Smithsonian bicentennial in 1965, the 200th Anniversary of our Founder's birth, a noble occasion reminding us all of the academic and intellectual links of institutions like our own around the world. We mourn their passing and the loss of contact with the past which always helps to prepare us for the premonitions of the future.





Charles Greeley Abbot, Secretary of the Smithsonian Institution, 1928-1944.

Leonard Carmichael, Secretary of the Smithsonian Institution, 1953-1964.



THE BOARD OF REGENTS held three meetings in fiscal year 1974. The autumn meeting, convened on September 21, 1973, was designated The Leonard Carmichael Memorial Meeting in honor of Dr. Carmichael, the seventh Secretary of the Smithsonian Institution. As an appropriate tribute to his memory, the Regents unanimously declared that the auditorium of the National Museum of History and Technology, constructed during his tenure, hereafter be known as the Leonard Carmichael Auditorium. A ceremony dedicating the Auditorium was held on January 21, 1974, presided over by the Chancellor, accompanied by music and with tributes from Dr. John Harper, Rector of St. John's Church, Dr. Melvin Payne, President of the National Geographic Society, and the Secretary.

The new Chairman of the National Board of the Smithsonian Associates, Mr. Lewis A. Lapham succeeding Mr. Thomas J. Watson, Jr., was assured of enthusiastic support by the Regents, who endorsed the concept that the Institutional Development Committee of the National Board of the Smithsonian Associates undertake the Cooper-Hewitt capital fund raising as its first effort.

Dr. Fred L. Whipple, Director of the Smithsonian Astrophysical Observatory from 1955 to 1973, retired in July, 1973, and is to continue his work as Senior Research Scientist. The Regents voted to award him the Henry Medal in recognition of his important contributions to the Institution.

Mr. Gordon N. Ray, Chairman of the Smithsonian Council, who was present, briefly reviewed the activities of the Council since its inception, citing its membership, its considerations, and conclusions. The Board of Regents thanked Mr. Ray for his efforts and conveyed appreciation to the Council members for their interest and work in behalf of the Institution.

The appointment of James H. Billington as Director of the Woodrow Wilson International Center for Scholars was announced.

The death of Mrs. Marjorie Merriweather Post, a great benefactor of the Smithsonian Institution, occurred on September 12, 1973. A

Smithsonian Committee was organized to work with the representatives of Mrs. Post's estate and foundation to facilitate an orderly transfer of the property and collections bequeathed to the Smithsonian.

Subsequently the Board of Regents, their wives, members of the National Board of the Smithsonian Associates, and the Chairman of the Smithsonian Council gathered for the presentation of the James Smithson Benefactor Medallion to Thomas J. Watson, Jr., for his important contributions to the Smithsonian Institution.

The January 25, 1974, meeting of the Board of Regents was designated The Charles Greeley Abbot Memorial Meeting in tribute to the Smithsonian Institution's fifth Secretary, whose death occurred in December at the age of 101. Appropriately, the Radiation Biology Laboratory will bear Dr. Abbot's name henceforward, since this aspect of the Institution's research owes its genesis, in 1929, to Dr. Abbot.

The meeting took place at the Fort Pierce Bureau of the Smithsonian Institution located at Fort Pierce, Florida, including the Harbor Branch Laboratory, as well as the research barge and the RV *Johnson*. Secretary Ripley explained the history of the Fort Pierce Bureau, its programs, and its plans for the future. A tour of the facilities included brief talks by staff members, a tour of the model shop, inspection of the submersible, and a demonstration of the launch and recovery of the submarine.

It was with great reluctance that the Executive Committee accepted the decision of Crawford Greenewalt not to stand for reappointment after serving for eighteen years as an outstanding and distinguished Regent.

The Regents accepted the Acee Blue Eagle collection of paintings and artifacts in order to foster interest in and understanding of American Indian art and culture. It will be housed in the Anthropological Archives of the Department of Anthropology of the National Museum of Man.

The Smithsonian was granted a permit by the General Services Administration for use of the former Beef Cattle Experiment Station at Front Royal, Virginia; the National Zoological Park plans initially to utilize this reserve for a breeding project.

The spring meeting of the Board was held in the Regents' Room of the Smithsonian Building on May 14, 1974. A Nominating Commit-



tee appointed by the Chancellor submitted its recommendation for a new Citizen Regent and for reappointment of two other Citizen Regents whose terms were to expire. Joint resolutions were recommended to be introduced in the Congress for these appointments.

The Board authorized acceptance of a Zeiss planetarium instrument, a Bicentennial gift from the Federal Republic of Germany. This will be installed in the National Air and Space Museum to simulate the wonders of space and is expected to be operating when the Museum opens in July, 1976. The instrument is to be named in honor of the late Albert Einstein.

The Regents received the report of the second Smithsonian Priorities Conference convened at the Belmont Conference Center on February 19-21, 1974, which pointed out in detail the progress of Smithsonian programs in the past year, and recommended additional steps to be taken in administration and management within the Institution. Coupled with this were copies of a new survey of buildings and facilities owned or occupied by the Institution.



Visitors to the Smithsonian Museum Shops.

## FINANCIAL REPORT

T. AMES WHEELER, TREASURER

CONTINUED SOUND PROGRESS was shown in Smithsonian finances in fiscal year 1974. Thanks to increased federal support and further improvement in results of the Institution's own educational and revenue-generating efforts, we were able to cope satisfactorily with the large inflation-bred rise in costs of salaries, supplies, and services, and, at the same time, to strengthen our current operating funds position.

Added federal appropriations enabled us to increase needed museum protection and other support services and to step up preparations for our important 1976 Bicentennial commitments. These included steady progress on construction and future exhibits for the new National Air and Space Museum and a beginning on a major long-term reconstruction of National Zoological Park facilities. An additional \$1-million gift from the donor of the collections permitted completion of the construction of the Hirshhorn Museum and Sculpture Garden. Other gifts and grants for specific purposes funded a wide variety of research and exhibit activities.

There remains an urgent need for major outside contributions in support of the Cooper-Hewitt Museum of Decorative Arts and Design and a large number of other specific projects. Also, the Institution's endowment funds — always far from adequate for an Institution of this size — experienced during the year a worrisome drop in value. In other respects, however, Smithsonian finances can be said to have improved substantially in fiscal year 1974. Full detail of these results is provided below.



## *Overall Sources and Application of Financial Support*

The total financial support available to the Institution from all sources is shown in Table 1. These figures do not include the finances of the National Gallery of Art, the John F. Kennedy Center for the Performing Arts, and the Woodrow Wilson International Center for Scholars, which are all related legislatively to the Smithsonian but whose financial and administrative affairs are for the most part separately managed under independent Boards of Trustees.

Total funds for operating purposes rose to \$82,681,000 in fiscal year 1974, an increase of \$10,607,000 over the preceding year. Federal appropriations of \$65,063,000 accounted for 78.7 percent of the total, research grants and contracts 12.1 percent, and nonfederal income 9.2 percent; this ratio of support was roughly the same in fiscal year 1973. In addition, Congress provided \$21,860,000 in construction funds for continuing work on the National Air and Space Museum, for repairs to other Smithsonian buildings, and for the National Zoological Park, principally for "Lion Hill," a major beginning on the long-term renovation plan of Zoo facilities.

In Table 2, these revenues from all sources (excluding construction funds and the Special Foreign Currency Program) and their application to individual Smithsonian bureaus and activities are shown in considerable detail, demonstrating the complexity of funding resulting from the variety of resources and the large number of diversified services provided.

### *FEDERAL OPERATING FUNDS*

Federal appropriations for operating purposes totaled \$65,063,000 including \$1,695,000 for the Smithsonian Science Information Exchange, a separately incorporated organization, and \$4,500,000 for the Special Foreign Currency Program (in the blocked currency of certain foreign countries). The Special Foreign Currency Program administers grants to United States universities and similar organizations for research studies in Egypt, India, Pakistan, Poland, Tunisia, and Yugoslavia (see Table 3). This program included a special \$1,000,000 amount (to be renewed for three additional years) to allow United States participation in UNESCO's international campaign to preserve archeological monuments on the Island of Philae in Egypt.

**TABLE 1. Overall Sources of Financial Support**  
[In \$1,000's]

<i>Sources</i>	<i>FY 1971</i>	<i>FY 1972</i>	<i>FY 1973</i>	<i>FY 1974</i>
<b>OPERATING FUNDS</b>				
<b>Federal appropriation:</b>				
Salaries and expenses .....	\$36,895	\$44,701	\$51,633	\$58,868
Smithsonian Science Information Exchange .....	*	1,600	1,600	1,695
Special Foreign Currency Program .....	2,500	3,500	3,500	4,500
Subtotal .....	\$39,395	\$49,801	\$56,733	\$65,063
Research grants and contracts .....	9,312*	8,088	8,996	9,996
<b>Nonfederal funds:</b>				
Gifts (excluding gifts to endowments)				
Restricted purpose .....	1,880	1,598	2,901	1,970
Unrestricted purpose .....	304**	26**	33**	275**
Income from endowment and current funds investment				
Restricted purpose .....	1,372	1,573	1,736***	1,750
Unrestricted purpose .....	330	334	436	747
Revenue producing activities (net)	(534)	(141)	170	1,770
Miscellaneous .....	406	482	1,069	1,110
Total nonfederal funds .....	3,758	3,872	6,345***	7,622
Total Operating Support ....	\$52,465	\$61,761	\$72,074	\$82,681
<b>CONSTRUCTION FUNDS</b>				
<b>Federal Construction Funds:</b>				
National Zoological Park .....	\$ 200	\$ 200	\$ 675	\$ 3,790
National Air & Space Museum ...	-0-	1,900	13,000	17,000
Hirshhorn Museum .....	5,200	3,697	-0-	-0-
Restoration & Renovation of Bldgs.	1,725	550	5,014	1,070
Total Federal Construction Funds	\$ 7,125	\$ 6,347	\$18,689	\$21,860
<b>Private Plant &amp; Land Acquisition Funds:</b>				
Copper-Hewitt Museum .....	\$ —	\$ 700	\$ 106	\$ 262
Hirshhorn Museum .....	—	—	—	1,000
Chesapeake Bay Center .....	25	386	149	70
Total Private Plant and Land Acquisition Funds .....	\$ 25	\$ 1,086	\$ 255	\$ 1,332

\* Smithsonian Science Information Exchange, Inc., funded by National Science Foundation contract in fiscal year 1971 (\$1,400,000) and thereafter by direct federal appropriation.

\* Excluding gifts to Associates (included under Revenue Producing Activities).

\* Includes \$225,000 of fiscal year 1973 income transferred from Endowment Fund No. 3 for this purpose in fiscal year 1972.

**TABLE 2.—Source and Application of Operating Funds for  
Year Ended June 30, 1974**  
(Excludes Special Foreign Currency Funds, Plant Funds, and Endowments)  
[In \$1,000's]

Funds	Nonfederal funds						
	Fed- eral funds	Total non- fed- eral funds	Unrestricted		Restricted		
			Gen- eral	Reve- nue pro- duc- ing	Spe- cial pur- pose	Gen- eral	Grants and con- tracts
FUND BALANCES —							
1 July 1973 .....	\$ 0	\$ 5,120	\$ 2,292	\$ 0	\$ 201	\$ 2,546	\$ 81
FUNDS PROVIDED							
Federal Appropriations ...	\$60,563						
Investment Income .....		\$ 2,497	\$ 744	\$ —	\$ 3	\$ 1,750	\$ —
Grants and Contracts .....		9,968	—	—	—	—	9,968
Gifts .....		2,505	151	260	124	1,970	—
Sales and Revenue .....		12,615	—	12,473	142	—	—
Other .....		970	284	2	138	546	—
Total Provided .....	\$60,563	\$28,555	\$1,179	\$12,735	\$407	\$4,266	\$ 9,968
Total Available ....	\$60,563	\$33,675	\$3,471	\$12,735	\$608	\$6,812	\$10,049
FUNDS APPLIED							
Science:							
Environmental Science ....	\$ 1,316	\$ 1,158	\$ 14	\$ —	\$ 5	\$ 107	\$ 1,032
Natl. Museum of Nat. Hist. ....	8,040	1,055	41	—	43	161	810
Natl. Zoological Park .....	4,565	46	19	—	—	21	6
Fort Pierce Bureau .....	—	1,032	24	—	—	1,008	—
Science Info. Exchange ....	1,695	—	—	—	—	—	—
Smithsonian Astroph. Observatory .....	3,207	5,844	18	—	7	210	5,609
Radiation Biology Lab. ....	1,294	95	—	—	—	9	86
Smithsonian Tropical Research Inst. ....	1,002	70	1	—	47	4	18
Interdisciplinary Communi- cations Program .....	—	894	22	—	1	30	841
Natl. Air and Space Museum .....	2,633	108	3	—	59	24	22
Other Science .....	1,132	1,041	118	—	1	114	808
Total	24,884	11,343	260	—	163	1,688	9,232
History and Art:							
Natl. Portrait Gallery ....	1,122	62	22	—	25	1	14
Natl. Collection of Fine Arts .....	1,653	79	8	—	34	35	2
Freer Gallery of Art .....	274	1,134	—	—	—	1,134	—
Natl. Museum of History and Technology .....	4,334	398	46	—	11	222	119



TABLE 2. *Source and Application of Operating Funds for  
Year Ended June 30, 1974—continued*

[In \$1,000's]

Funds	Federal funds	Total non- fed- eral funds	Nonfederal funds					
			Unrestricted			Restricted		
			Gen- eral	Reve- nue pro- ducing	Spe- cial pur- pose	Gen- eral	Grants and con- tracts	
Cooper-Hewitt Museum ...	174	266	4	—	—	237	25	
Archives of American Art .....	238	203	—	—	—	203	—	
Bicentennial of the American Revolution ...	1,746	—	—	—	—	—	—	
Hillwood .....	—	210	—	—	—	210	—	
Hirshhorn Museum .....	1,326	82	82	—	—	—	—	
Other History and Art ....	1,263	63	5	—	—	19	39	
Total .....	12,130	2,497	167	—	70	2,061	199	
Public Service:								
Revenue Producing Activities								
Smithsonian Press .....	800	200	—	200	—	—	—	
Performing Arts .....	422	1,083	—	493	—	107	483	
Other .....	—	10,342	—	10,272	—	9	61	
Anacostia Museum .....	317	21	18	—	—	3	—	
Reading Is Fundamental, Inc. ....	—	533	—	—	—	533	—	
Other Public Service .....	1,157	83	72	—	—	5	6	
Total .....	2,696	12,262	90	10,965	—	657	550	
Museum Programs:								
Libraries .....	1,165	2	—	—	—	2	—	
Exhibits .....	1,063	26	—	—	13	2	11	
Natl. Museum Act Programs .....	684	—	—	—	—	—	—	
Other Museum Programs ..	1,409	87	45	—	6	36	—	
Total .....	4,321	115	45	—	19	40	11	
Buildings Management and Protection Services .....	11,839	9	9	—	—	—	—	
Administration .....	4,693	3,386	443	461	13	331	2,138	
Overhead Recovered ....	—	(3,345)	(402)	(461)	(13)	(331)	(2,138)	
Transfers for Designated Purposes .....	—	1,026	(208)	1,770	(104)	(436)	4	
Total Funds Applied	\$60,563	\$27,293	\$ 404	\$12,735	\$148	\$4,010	\$9,996	
FUND BALANCES —								
30 June 1974 .....	0	\$ 6,382	\$3,067	\$	0	\$460	\$2,802	\$ 53

TABLE 3. *Special Foreign Currency Program,  
Fiscal Year 1974 Obligations*

[In \$1,000's]

Country	Archeology	System- atic & Environ- mental Biology	Astro- physics & Earth Sciences	Museum Programs	Grant Adminis- tration	Total
India .....	\$ 125,470	\$ 112,650	\$31,369	\$ 8,679	\$48,081	\$ 326,24
Pakistan .....	92,661	223,383	—	950	—	316,99
Poland .....	311,750	68,726	38,645	8,576	670	428,36
Tunisia .....	96,661	544,107	16,250	40,343	5,668	703,02
Egypt .....	1,619,172	115,046	401	34,370	—	1,768,98
Yugoslavia .....	85,908	400,905	—	—	—	486,81
Total .....	\$2,331,622	\$1,464,817	\$86,665	\$92,918	\$54,419	\$4,030,44

Excluding these special-purpose appropriations for the Science Information Exchange and the Foreign Currency Program, federal operating funds amounted to \$58,868,000. This is \$7,235,000 more than fiscal year 1973, but \$4,180,000 (58 percent) of this substantial increase is attributable solely to meeting the costs of federal pay raises of various categories beyond the Institution's control. The balance of the increase, \$3,055,000, went primarily to three high-priority program objectives. These were (1) preparation of exhibits and related work of the National Air and Space Museum scheduled to open in its new building on the Mall on July 4, 1976; (2) development of special Washington, D. C., and national Bicentennial activities; and (3) phased strengthening of supporting services such as museum object conservation; reference and research libraries; automatic data processing applications to research, collections, and administrative activities; and buildings and facilities care and protection. Allocation of the appropriations for operating purposes (excluding the Foreign Currency Program) by broad activity areas over the past several years is shown in Table 4.

It may be of interest to note that in performance terms about \$12.6 million of the fiscal year 1974 appropriation was spent on basic research in art, history, and science; \$4.2 million on the acquisition and management of collections (only a few hundred thousand dollars of this were available for the purchase of objects); \$7.1 million for

TABLE 4. *Application of Federal Appropriations*  
*Fiscal Year 1971 through Fiscal Year 1974*

(Excluding Special Foreign Currency Program)  
 [In \$1,000's]

<i>Area</i>	<i>FY 1971</i>	<i>FY 1972</i>	<i>FY 1973</i>	<i>FY 1974</i>
Science .....	\$13,495	\$18,365*	\$20,329*	\$24,884*
History and Art .....	5,878	6,285	8,022	12,130
Public Service .....	1,442	2,093	2,253	2,696
Museum Programs .....	3,744	5,881	6,660	4,321
Administration .....	3,051	3,235	3,987	4,693
Building Maintenance and Protection .....	9,285	10,442	11,982	11,839
Total .....	\$36,895	\$46,301	\$53,233	\$60,563

\* Includes \$1,600,000 (FY 1972 and FY 1973) and \$1,695,000 (FY 1974) for the Smithsonian Science Information Exchange, Inc., which had been funded prior to 1972 by grants from the National Science Foundation.

the design, production, installation, and upkeep of exhibits; and \$2.7 million for various aspects of public and scholarly education and orientation. These program output areas total about \$26.6 million. Support areas total about \$34 million, of which \$13.0 million was for the care of buildings, \$7.8 million was for protection and security, and the balance was for other important administrative and support functions.

#### FEDERAL CONSTRUCTION FUNDS

Construction funding in fiscal year 1974 amounted to \$4,860,000, plus \$17,000,000 to meet progress payments under the contract authority provided in the fiscal year 1973 Appropriation Act for the construction of the National Air and Space Museum. The new appropriation provided primarily for the construction of the exciting new lion and tiger exhibit at the National Zoological Park and further planning efforts aimed at implementing the approved master plan for the complete renovation of the Zoo. This funding also provided relatively minor amounts for repairs and improvements to other Smithsonian facilities such as safety and access improvements to the Mount Hopkins Observatory road in Arizona.



## GRANTS AND CONTRACTS

Grants and contracts from federal agencies once again contributed in a major way to the Institution's research programs, predominantly in scientific disciplines. \$9,996,000 of these funds was expended in fiscal year 1974, up from \$8,996,000 in fiscal year 1973. The major recipient, accounting for over half of the total expenditures, continued to be the Smithsonian Astrophysical Observatory in Cambridge, Massachusetts, with grants from the National Aeronautics and Space Administration for such projects as the monitoring of Comet Kahoutek, meteor studies, and design of hydrogen maser systems. Other projects ranged from ecological studies in South America and Asia to research on American folklore. Table 5 shows the major granting agencies to the Smithsonian over a four-year period, representing several hundred different grants and contracts each year.

## PRIVATE TRUST FUNDS

Originally established entirely with funds from Mr. Smithson's bequest, the Institution has, over a long period of years, derived an increasing proportion of its support from federal appropriations as it was entrusted with more national collections and expanded its research and public exhibitions.

It is now an important goal of Smithsonian administration to bolster the Institution's private resources in line with or exceeding the growth of its federal support, in order to restore a better balance between the two, thereby helping to preserve its uniquely flexible and independent character among national establishments. Despite the many serious economic uncertainties of this past 12-month period, fiscal year 1974 results were in line with this goal. Receipts (including those for operating purposes, land acquisition, and building construction) from gifts, investment income, revenue-producing activities, fees, and other revenues all increased to record levels, with the total equaling \$8,954,000 (not including \$105,000 gifts to endowment funds). Of this total \$5,598,000 was designated for specific restricted purposes; this latter amount was fractionally higher than in fiscal year 1973, while income for unrestricted purposes rose from \$1,013,000 to \$3,356,000 (see Table 6).

TABLE 5. *Grants and Contracts*

[In \$1,000's]

<i>Federal Agencies</i>	<i>FY 1971</i>	<i>FY 1972</i>	<i>FY 1973</i>	<i>FY 1974</i>
Atomic Energy Commission .....	\$ 91	\$ 73	\$ 76	\$ 72
Department of Commerce .....	166	392	203	184
Department of Defense .....	843	916	969	872
Department of Health, Education and Welfare .....	409	411	306	261
Department of Interior .....	258	247	230	283
Department of Labor .....	3	11	51	163
Department of State .....	176	195	593	1,066
National Aeronautics and Space Administration .....	4,930	4,605	4,923	5,308
National Endowments for the Arts and Humanities .....	—	35	58	102
National Science Foundation ....	2,028*	560	957	690
Other .....	408	643	630	995
<b>Total .....</b>	<b>\$9,312</b>	<b>\$8,088</b>	<b>\$8,996</b>	<b>\$9,996</b>

\* Includes funding for Smithsonian Science Information Exchange, Inc. of \$1,400,000.

TABLE 6. *Total Private Funds Income Fiscal Year 1974*

[In \$1,000's]

Revenue sources	Unrestricted purposes		Restricted purposes	Total
	General & revenue producing	Special purpose*		
For Operating Purposes:				
Investments .....	\$ 744	\$ 3	\$1,750	\$2,497
Gifts .....	151**	124	1,970	2,245
Revenue Producing Activities ..	1,770	—	—	1,770
Concessions and miscellaneous..	284	280	546	1,110
Total Operating Funds ..	<u>\$2,949</u>	<u>\$407</u>	<u>\$4,266</u>	<u>\$7,622</u>
For Plant:				
Gifts —				
Hirshhorn Museum .....	\$ —	\$ —	\$1,000	\$1,000
Chesapeake Bay Center .....	—	—	70	70
Cooper-Hewitt Museum .....	—	—	117	117
Total Gifts .....	<u>\$ —</u>	<u>\$ —</u>	<u>\$1,187</u>	<u>\$1,187</u>
Miscellaneous —				
Cooper-Hewitt Museum .....	<u>\$ —</u>	<u>\$ —</u>	145	145
Total Plant .....	<u>\$ —</u>	<u>\$ —</u>	<u>\$1,332</u>	<u>\$1,332</u>
Grand Total .....	<u>\$2,949</u>	<u>\$407</u>	<u>\$5,598</u>	<u>\$8,954</u>

\* Classified as Restricted Funds in previous years; represents unrestricted income designated by management to be used only for specific purposes.

\*\* Excluding \$260,000 gifts to Associates (included under Revenue Producing Activities) and \$105,000 gifts to Endowment Funds.

## UNRESTRICTED PRIVATE FUNDS

The substantial increase in unrestricted general purpose private funds in fiscal year 1974 was extremely welcome and enabled the Institution for the first time to reserve private monies for plant improvements not believed to be obtainable from federal appropriations but which will enhance our ability to serve the public and which may, at the same time, lead to increased private support in the years ahead. The build-up of the general unrestricted fund balance to a more adequate level of \$3,067,000 also means that portions of any similar gains in future years may also be used for this purpose or to strengthen our present low endowment reserves.

As may be seen in Table 7, the increase in income before transfers to other funds, equaling \$2,336,000 in fiscal year 1974 compared to \$688,000 in fiscal year 1973, arose in part from a jump in investment income but, more importantly, from successful results of our educational and revenue-producing activities. There was, at the same time, a somewhat offsetting rise in administrative costs, partly from salary and other administrative cost increases (including an initial charge of \$198,000 to establish a reserve for employees' accrued annual leave), but also reflecting greater assistance to a number of bureaus for special needs and urgent research projects.

The increase in investment income this year resulted primarily from the build-up in working capital and advance *Smithsonian* magazine subscription monies which made more funds available for investment in high quality short-term issues at prevailing high interest rates. As may be noted on the Balance Sheet, page 48, current fund investments equaled \$8,298,000 as of June 30, 1974, compared to \$6,223,000 a year earlier; of the former amount, \$6,600,000 was invested in very high grade, short-term securities and bank certificates of deposit.

The *Smithsonian* magazine was responsible for the largest share of the net gain from revenue-producing activities. As shown in Table 8, its income for the year rose to \$1,327,000, from \$330,000 in the previous year. At June 30, 1974, there were 622,000 National Associate members and subscribers to the magazine, making it one of the fastest growing publications in the Nation. The Associates program also contributed heavily to this year's gains, with net income of \$263,000, versus a slight loss in fiscal year 1973. The Resident Asso-



**TABLE 7. Unrestricted Private Funds**  
**General and Revenue Producing Activities**

(Excluding Special Purpose Funds and Gifts to Endowment)

[In \$1,000's]

<i>Item</i>	<i>FY 1971</i>	<i>FY 1972</i>	<i>FY 1973</i>	<i>FY 1974</i>
<b>INCOME</b>				
<b>General Income:</b>				
Investments .....	\$ 334	\$ 334	\$ 436	\$ 744
Gifts .....	304	26	33	151
Concessions and miscellaneous..	215	197	374	284
Total General Income .....	853	557	843	1,179
<b>Revenue Producing Activities:</b>				
Associates				
Smithsonian Magazine .....	(209)	2	330	1,327
Other .....	10	74	(43)	263
Shops .....	(80)	19	47	226
Press .....	(159)	(111)	(109)	(89)
Performing Arts .....	(78)	(50)	(65)	104
Product Development .....	—	—	69	37
Other Activities .....	(18)	(75)	(59)	(98)
Total Activities .....	(534)	(141)	170	1,770
Total Income .....	319	416	1,013	2,949
<b>EXPENDITURES</b>				
Administrative Expense .....	2,681	2,956	3,097	3,957
Less Administrative Recovery ...	2,254	2,639	2,772	3,345
Net Administrative Expense ...	427	317	325	612
Net Gain (Loss) before Transfers	(108)	99	688	2,337
<b>Less Transfers:</b>				
To Plant .....	—	—	—	1,134
To Endowment .....	21	21	21	121
Other (Net) .....	21	17	124	307
Net Gain (Loss) after Transfers	(150)	61	543	775
Ending Balance .....	\$1,720	\$1,781	\$2,292*	\$3,067

\* Adjusted to reflect reclassification to Plant Funds of \$32,000 net investment in capitalized equipment.

ciates program continues to furnish great benefits to the Washington, D.C., community with its offering of classes, study trips, lectures, and exhibit openings; the Foreign Study Tours program has likewise gained enthusiastic acceptance.

TABLE 8. *Revenue Producing Activities for Fiscal Year 1974*

[In \$1,000's]

Item	Total	Museum Shops	Press*	Associates				
				Smith- sonian Maga- zine	Other	Per- forming Arts	Product develop- ment	Other**
Sales and Revenues .....	12,473	2,141	111	7,127	1,778	597	107	612
Less Cost of Sales .....	6,918	1,211	83	4,426	886	145	—	167
Gross Income	5,555	930	28	2,701	892	452	107	445
Gifts .....	260	—	—	—	260	—	—	—
Other Income ...	2	—	—	—	—	—	—	2
Total Income ...	5,817	930	28	2,701	1,152	452	107	447
Expenses .....	3,586	604	105	1,174	820	314	64	505
Administrative Costs .....	461	100	12	200	69	34	6	40
Income (Loss) before Transfers ....	1,770	226	(89)	1,327	263	104	37	(98)
Less Transfers	28	—	(5)	—	—	—	33***	—
Net Income (Loss) .....	1,742	226	(84)	1,327	263	104	4	(98)

\* The privately funded activities of the Press as opposed to the federally supported publication of research papers.

\*\* Includes Traveling Exhibitions, Belmont Conference Center, Photo Sales, "Commons" Restaurant, Center for Short-Lived Phenomena, Special Publications, and Television Programs.

\*\*\* This includes allocations to the Press and other Smithsonian bureaus participating in this program.

The profitability of the Museum Shops also increased dramatically, from \$47,000 in fiscal 1973 to \$226,000 in fiscal 1974, due in large measure to improved management practices and increased emphasis on higher quality merchandise relevant to the collections exhibited in the various Smithsonian museums. As with the Product Development Program, which transferred \$33,000 of royalties to individual bureaus, income from the Museum Shops will in the future be shared with the museums for their use in public education programs and purchases for the collections.

The Performing Arts Division produced an extremely successful record album, the *History of Jazz*, which enabled them to show a gain of \$104,000 in this fiscal year, as opposed to a deficit of \$65,000

in fiscal year 1973. Another "bestseller" was the guidebook, *Seeing the Smithsonian*, developed by the Smithsonian Press and Product Development Offices in cooperation with the CBS Publishing Company; its sales added substantially to the profitability of the Museum Shops.

As any surplus funds accrue from project receipts of the shops or the Associates program an appropriate effort is made to return this in kind to the public in the form of improved public facilities, improved public reference books or publications, and improved public exhibits. As an example, the unusually large net gain in unrestricted private funds in fiscal year 1974 coincided with urgent requirements for construction funds, necessitating transfers of \$1,134,000 to the Institution's plant funds, with other transfers to Special Purpose funds, Restricted Funds, and Endowment Funds bringing total transfers to \$1,561,000 (see Table 7). Of the transfers to plant funds, \$365,000 was set aside to redesign and reconstruct the museum shop in the National Museum of History and Technology. Another \$500,000 was reserved for a part of the costs of the proposed construction of additional public service facilities in the West Court of the National Museum of Natural History. Finally, \$150,000 was transferred to cover a part of the cost of a visitor's study center at the Chesapeake Bay Center for Environmental Studies, and \$119,000 was transferred for computer and equipment purchases. Other transfers from unrestricted funds include allocations toward operations of the Cooper-Hewitt Museum (\$178,000), special research grants to Smithsonian scientists (\$49,000), and transfers to Endowment (\$121,000) which includes a bequest of \$100,000 from the estate of Paula Lambert.

A new category of unrestricted private funds ("Special Purpose") is set out separately this year, namely, those which are legally unrestricted but which have been designated by management to be reserved for specific uses (see Table 6). These accounts, previously treated as a part of Restricted Funds, include, for example, receipts from parking at the Zoo (reserved to aid future construction of additional parking facilities for visitors), and revenues from various minor enterprises in individual museums (e.g., charges for tour-guide audiophone equipment, etc.) and related expenditures of these monies, chiefly for improvement of exhibits. As of June 30, 1974, balances of these funds totaled \$460,000, an increase of \$259,000 in the year.



TABLE 9. *Restricted Operating Private Funds,\* Fiscal Year 1974*

[In \$1,000's]

Fund	Income				Deductions	Transfers in (out)	Net increase (decrease)	Fund balance end of year
	Investment	Gifts	Miscellaneous	Total income				
Archives of American Art . . . . .	\$ 1	\$ 19	\$186	\$ 206	\$ 203	\$ 9	\$ 12	\$ 205
American Banking Exhibit . . . . .	—	285	—	285	17	—	268	268
American Maritime Hall . . . . .	—	52	—	52	—	—	52	166
Cooper-Hewitt Museum:								
Operations . . . . .	6	29	38	73	190	232	115	—
Funds for Collection and other Special Purpose Funds . . . . .	—	70	—	70	47	10	33	582
Fort Pierce Bureau . . . . .	530	385	28	943	1,008	300	235	192
Freer Gallery . . . . .	876	100	200	1,176	1,134	—	42	191
Hillwood . . . . .	—	299	1	300	210	—	90	79
Reading is FUNDamental . . . . .	—	—	—	—	532	—	(532)	180
Other . . . . .	337	731	93	1,161	1,104	(115)	(58)	939
Total Restricted Funds . . . . .	\$1,750	\$1,970	\$546	\$4,266	\$4,445	\$436	\$257	\$2,802

\* Excluding Grants and Contracts shown in Table 5 and also Restricted Plant Funds included in Table 6.

## RESTRICTED PRIVATE FUNDS

The Restricted Private Funds of the Institution, which support a wide variety of activities even beyond the major ones highlighted in Table 9, received \$4,266,000 for operating purposes in fiscal year 1974. The Freer Gallery of Art and the Fort Pierce Bureau depend primarily on income from their endowment funds, while the Cooper-Hewitt Museum of Decorative Arts and Design and the Archives of American Art, although receiving some federal support, must look to gifts, grants, memberships, and various money-raising efforts for their principal operating funds. In addition, it was necessary to transfer \$178,000 of private unrestricted funds to Cooper-Hewitt in fiscal year 1974 to eliminate operating deficits accumulated over this and previous years.

In September 1973, at the death of Mrs. Marjorie Merriweather Post, the responsibility for her "Hillwood" estate and the extraordinary collections it contains passed to the Smithsonian. A trust fund

was provided by her will for the maintenance and operation of Hillwood, but the estate had not yet been settled at year-end; part-year income and expenditures for this new project are reflected in the Restricted Private Funds table.

The National Museum of History and Technology is conducting a fund-raising campaign, with strong support from industry, to enable creation of a new exhibit "Hall of American Maritime Enterprise" devoted to national marine history. As of June 30, 1974, \$166,000 had been raised with additional pledges received of over \$100,000.

A gift of \$1 million was received from Joseph H. Hirshhorn in fiscal year 1974 to be used to complete construction of the Hirshhorn Museum and Sculpture Garden, due to open to the public in October 1974. This gift is reflected in the restricted gifts total in Table 6 in the category of Plant Funds along with other gifts and miscellaneous revenues for the new Chesapeake Bay Center building (\$70,000) and renovation of the Carnegie Mansion for the Cooper-Hewitt Museum (\$262,000).

ENDOWMENT FUNDS

The Smithsonian endowment includes three separate investment funds: the Freer Fund, whose income is used solely by the Freer Gallery of Art; Endowment Fund No. 3, which supports oceanographic research at the Fort Pierce Bureau in Florida; and the Consolidated Fund, which is an investment pool of all other Smithsonian restricted and unrestricted endowment funds, although distinct administration and accounting is maintained on each individual fund. Changes in market values of these funds since 1970, reflecting additions from donations and reinvestment of income, limited withdrawals, and changes in securities valuations are shown in Table 10.

TABLE 10. *Market Values of Endowment Funds*  
[In \$1,000's]

<i>Fund</i>	<i>6/30/70</i>	<i>6/30/71</i>	<i>6/30/72</i>	<i>6/30/73</i>	<i>6/30/74</i>
Freer .....	\$14,987	\$18,805	\$21,973	\$18,279	\$14,250
Endowment No. 3 ..	5,433	12,331	14,641	13,196	11,128
Consolidated .....	8,998	11,470	13,287	12,393	10,172
Total .....	<u>\$29,418</u>	<u>\$42,606</u>	<u>\$49,901</u>	<u>\$43,868</u>	<u>\$35,550</u>

As detailed in previous Smithsonian Annual Reports, the investment of these three endowments is managed by three professional advisory firms, under the close supervision of the Investment Policy Committee and the Treasurer, and subject to policy guidelines set by the Smithsonian's Board of Regents. Under the Total Return policy, adopted for all funds by the Board of Regents in 1972, the income to be paid each fund in the subsequent fiscal year is determined each March 31 by computing 4½ percent of the running five-year average of market values. By selecting a fixed rate of return, regardless of what the actual yield may be, the investment advisors are free to choose the most attractive securities without being limited by the need to achieve a specified dividend and interest income level and at the same time Smithsonian budgeting procedures are simplified.

TABLE 11. *Changes in Endowment Funds for Fiscal Year 1974*

[In \$1,000's]

<i>Fund</i>	<i>Market value 6/30/73</i>	<i>Gifts and transfers</i>	<i>Interest and dividends*</i>	<i>Income paid out</i>	<i>Sub- total</i>	<i>Decline in market value</i>	<i>Market value 6/30/74</i>
Freer Fund ...	\$18,279	\$ —	\$ 670	\$ 876	\$18,073	\$3,823	\$14,250
Endowment Fund No. 3..	13,196	(300)	445	520	12,821	1,693	11,128
Consolidated Fund .....	12,393	297	478	552	12,616	2,444	10,172
Total** ..	<u>\$43,868**</u>	<u>\$ (3)</u>	<u>\$1,593</u>	<u>\$1,948</u>	<u>\$43,510</u>	<u>\$7,960</u>	<u>\$35,550</u>

\* Income earned less managers' fees.

\*\* Not including Endowment Funds of \$1,000,000 held in U.S. Treasury, carrying 6 percent interest, nor minor amount of miscellaneous securities treated separately.

As shown in Table 11, the market values of the endowment funds suffered badly in fiscal year 1974, sharing fully in the general stock market decline. This fall in market values will have the effect in fiscal year 1975 of reducing the Total Return income to the Freer and Consolidated Funds to somewhat below the level of fiscal year 1974, although still higher than prior years.



Gifts, bequests, and reinvestment of income in certain restricted funds added \$297,000 to the Consolidated Fund, and a transfer of \$300,000 was made from Endowment Fund No. 3 to permit completion of the RV *Johnson* submarine tender as well as to cover costs relating to the entrapment of the submersible *Johnson-Sea-Link* in June 1973. Income totaling \$1,948,000, net of managers' fees, was paid out under the Total Return policy described above; this was \$355,000 in excess of dividend and interest yield on these Endowment Funds in the year. Market valuations and income of the individual restricted funds participating in the Consolidated pool are shown in Table 12, and detail on the funds by types of securities held is given in Table 13. A listing of the individual investments held in the various endowment funds at June 30, 1974, may be obtained upon request to the Treasurer of the Institution.

### *Accounting and Auditing*

The Private Trust Funds of the Institution, as well as the accounts of Smithsonian Science Information Exchange, Inc., the Smithsonian Research Foundation, and Reading-Is-Fundamental, Inc., are audited annually by independent public accountants. Their report for fiscal year 1974 on the Smithsonian is contained in the following pages, including a comparative balance sheet and a statement of changes in the various fund balances. Extensive changes in accounting treatment of a number of items in accordance with new guidelines established by the American Institute of Certified Public Accountants have been referred to at length in the Notes to these statements and are reflected in the tables in this report dealing with Unrestricted and Restricted Private Funds.

The Defense Contract Audit Agency annually performs an audit on grant and contract monies received from federal agencies. In addition, the federally appropriated funds of the Institution are subject to audit by the General Accounting Office. The internal audit staff continues to conduct audits throughout the wide range of Smithsonian activities and contributes greatly to smooth administrative and financial management.

TABLE 12. Consolidated Fund, June 30, 1974

<i>Funds participating in pool</i>	<i>Principal</i>		<i>Income</i>	
	<i>Book value</i>	<i>Market value</i>	<i>1974 Net income</i>	<i>Unexpended balance</i>
UNRESTRICTED FUNDS .....	\$ 4,616,391	\$ 3,809,559	\$219,510	\$ —
RESTRICTED FUNDS				
Abbott, William L. ....	211,924	187,195	11,420	2,411
Archives of American Art .....	21,986	19,081	782	—
Armstrong, Edwin James .....	4,133	3,176	185	—
Arthur, James .....	62,497	70,039	3,575	5,821
Bacon, Virginia Purdy .....	184,850	146,095	8,913	18,728
Baird, Spencer Fullerton .....	57,364	62,608	3,197	—
Barney, Alice Pike .....	44,821	50,191	2,562	6,240
Barstow, Frederic D. ....	2,032	1,792	110	1,806
Batchelor, Emma E. ....	67,414	52,069	3,176	6,066
Beauregard, Catherine				
Memorial Fund .....	77,837	69,749	792	791
Becker, George F. ....	317,610	252,863	15,428	10,763
Brown, Roland W. ....	51,303	47,868	2,443	7,595
Canfield, Frederick A. ....	59,323	77,168	3,940	—
Casey, Thomas Lincoln .....	25,489	22,552	1,376	1,856
Chamberlain, Frances Lea .....	44,007	49,281	2,515	5,859
Cooper, G. Arthur, Curator's Fund ..	2,840	2,294	97	—
Cooper-Hewitt Museum .....	158,973	121,148	5,822	—
Desautels, Paul E. ....	1,463	1,159	52	52
Div. of Mammal Curator Fund .....	3,366	2,863	146	920
Div. of Reptiles Curator Fund .....	1,006	847	38	120
Drake, Carl J. ....	283,815	230,827	11,562	25,406
Dykes, Charles .....	87,541	77,416	4,723	12,500
Eickemeyer, Florence Brevoort .....	16,988	19,015	971	2,602
Guggenheim, David and Florence ...	238,898	179,715	7,235	—
Hanson, Martin Gustav and				
Caroline Runice .....	18,077	15,986	975	9,919
Henderson, Edward P. Meteorite Fund	623	623	—	—
Hillyer, Virgil .....	13,365	11,826	721	3,548
Hitchcock, Albert S. ....	2,464	2,806	143	331
Hrdlicka, Ales and Marie .....	95,780	87,196	4,451	6,030
Hughes, Bruce .....	29,910	33,536	1,712	24,641
Johnson, E. R. Fenimore .....	16,361	11,836	722	4,732
Kellogg, Remington, Memorial .....	48,275	33,947	2,054	1,442
Lindsey, Jessie H. ....	587	493	25	633
Loeb, Morris .....	177,619	158,544	9,673	1,207
Long, Annette E. and Edith C. ....	848	976	49	232
Lyons, Marcus Ward .....	8,778	6,390	390	—
Maxwell, Mary E. ....	30,650	34,361	1,755	8,365
Myer, Catherine Walden .....	41,084	36,336	2,217	4,220

TABLE 12. Consolidated Fund, June 30, 1974—continued

<i>Funds participating in pool</i>	<i>Principal</i>		<i>Income</i>	
	<i>Book value</i>	<i>Market value</i>	<i>1974 Net income</i>	<i>Unexpended balance</i>
Nelson, Edward William .....	\$ 37,315	\$ 38,911	\$ 1,987	\$ —
Noyes, Frank B. ....	1,976	1,831	112	1,237
Pell, Cornelia Livingston .....	15,091	13,414	818	5,849
Petrocelli, Joseph, Memorial .....	11,582	13,033	665	8,540
Ramsey, Admiral and Mrs. DeWitt Clinton .....	527,193	387,110	23,857	15,467
Rathbun, Richard, Memorial .....	21,648	19,220	1,172	11,701
Reid, Addison T. ....	36,166	31,982	1,951	2,852
Roebbing Collection .....	188,656	210,194	10,730	1,059
Roebbing Solar Research .....	50,163	41,324	2,521	962
Rollins, Miriam and William .....	298,674	296,708	14,862	—
Ruef, Bertha M. ....	63,809	45,991	2,101	2,809
Smithsonian Agency Account .....	186,886	138,087	7,417	—
Sprague, Joseph White .....	2,179,658	1,785,177	89,418	1,746
Springer, Frank .....	28,025	31,366	1,601	20,767
Stevenson, John A. ....	9,525	8,522	435	—
Strong, Julia D. ....	20,348	18,061	1,101	4,559
T.F.H. Publications, Inc. ....	13,539	9,554	523	9,816
Walcott, Charles D. ....	191,293	185,590	9,296	11,323
Walcott, Charles D. and Mary Vaux	719,110	804,766	41,084	20,114
Walcott Botanical Publications .....	90,618	97,623	4,984	15
Zerbee, Francis Brinckle .....	1,483	1,649	84	1,718
Total Restricted Funds .....	\$ 7,204,659	\$ 6,361,980	\$332,666	\$295,370
Total Consolidated Funds ....	\$11,821,050	\$10,171,539	\$552,176	\$295,370



TABLE 13. *Endowment and Similar Funds Summary of Investments*

<i>Accounts</i>	<i>Book value 6/30/74</i>	<i>Market value 6/30/74</i>
<b>INVESTMENT ACCOUNTS</b>		
<b>Freer Fund:</b>		
Cash .....	\$ 544,442	\$ 544,442
Bonds .....	2,755,871	2,559,139
Convertible Bonds .....	1,657,791	1,360,919
Stocks .....	11,264,712	9,785,271
Total .....	\$16,222,816	\$14,249,771
<b>Consolidated Funds:</b>		
Cash .....	\$ 91,898	\$ 91,898
Bonds .....	2,981,194	2,785,227
Convertible Bonds .....	0	0
Stocks .....	8,747,958	7,294,414
Total .....	\$11,821,050	\$10,171,539
<b>Endowment Fund No. 3:</b>		
Cash .....	\$ 108,931	\$ 108,931
Bonds .....	2,996,566	2,916,807
Convertible Bonds .....	202,878	159,155
Stocks .....	9,423,532	7,944,033
Total .....	\$12,731,907	\$11,128,926
<b>Miscellaneous:</b>		
Cash .....	\$ 731	\$ 731
Bonds .....	9,769	9,100
Common Stocks .....	3,322	8,373
Total .....	\$ 13,822	\$ 18,204
Total Investment Accounts .....	\$40,789,595	\$35,568,440
<b>Other Accounts:</b>		
Notes Receivable .....	\$ 49,966	\$ 49,966
Loan to U.S. Treasury in Perpetuity .....	1,000,000	1,000,000
Total Other Accounts .....	\$ 1,049,966	\$ 1,049,966
Total Endowment and Similar Fund Balances ....	\$41,839,561	\$36,618,406

## *Donors to the Smithsonian*

The Smithsonian Institution gratefully acknowledges gifts and bequests received during fiscal year 1974 from the following:

### *\$100,000 or more:*

American Bankers Association	Mr. Joseph H. Hirshhorn
The Atlantic Foundation	Estate of Paula C. Lambert
Hillwood Trust	The Majorie Merriweather Post Foundation of D.C.

### *\$10,000 or more:*

Alcoa Foundation	International Business Machines Corporation
American Philosophical Society	Interdisciplinary Communication Associates, Inc.
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The Burroughs Wellcome Fund	Taxonomy
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Celanese Corporation of America	Telegraph Corporation
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Earhart Foundation	Mr. David Lloyd Kreeger
The Edipa Foundation, Inc.	S. S. Kresge Company
El Paso Natural Gas Company	Mr. and Mrs. Rodney M. Layton
Dr. William L. Elkins	Lilly Endowment, Inc.
Elsa Wild Animal Appeal	Mr. Charles A. Lindbergh
Mr. Alfred U. Elser, Jr.	Mr. Harold F. Linder
Entomological Society of America	The Link Foundation
The Eppley Foundation for Research	Mrs. Elizabeth Lorentz
Mrs. Ruth M. Epstein	The Lykes Foundation, Inc.
Fieldcrest Mills, Inc.	Maritime Overseas Corporation
First National Bank of Miami	Mr. and Mrs. William A. Marsteller
General Electric Company	Townsend B. Martin Charitable
General Telephone & Electronics	Foundation
Foundation	Mr. and Mrs. John Mayer
Mrs. Rebecca D. Gibson	McDonald's Corporation
Mr. Alfred C. Glassell, Jr.	Mr. Forrest L. Merrill
Mr. and Mrs. Joshua A. Gollin	Mobil Foundation, Inc.
Mrs. Katherine Graham	Mr. and Mrs. Harry C. Nail, Jr.
Great Lakes Aircraft Co.	National Bank of Detroit
Mr. Felix Guggenheim	National Council on Productivity



*\$1,000 or more—continued:*

National Research Council  
National Steel and Shipbuilding  
Company  
Northrop Corporation  
Northwest Industries Foundation, Inc.  
Olin Corporation Charitable Trust  
Ourisman Foundation, Inc.  
Palisades Foundation, Inc.  
Mr. Perry R. Pease  
J. C. Penney Company, Inc.  
The Pioneer Foundation  
Mr. and Mrs. Feodor U. Pitcairn  
Polaroid Foundation, Inc.  
Dr. and Mrs. John A. Pope  
Propeller Club of U.S., Port of  
New York  
R. J. Reynolds Industries, Inc.  
Miss Esther M. Ridder  
Mr. and Mrs. Ralph C. Rinzler  
Dr. S. Dillon Ripley  
Mr. and Mrs. William G. Roe  
Schubert Foundation  
Miss Elsie Shaver  
Shipbuilders Council of America  
Sidney Printing and Publishing Co.

Stacks Coin Company  
Miss Elizabeth Stein  
Mrs. Alice T. Strong  
Sumner Gerard Foundation  
Todd Shipyards Corporation  
T.R.W. Foundation, Inc.  
Trust of Georgia Foundation  
UNESCO  
University of Michigan  
Mr. Arthur K. Watson  
Mr. Thomas J. Watson, Jr.  
Ellen Bayard Weedon Foundation  
Mr. Christopher A. Weeks  
Mr. Kermit A. Weeks  
Miss Leslie Anne Weeks  
Wells Fargo Bank  
Wenner-Gren Foundation  
Mr. and Mrs. Albert Whiting  
Elsie de Wolfe Foundation, Inc.  
Women's Committee of the  
Smithsonian Institution  
Woodheath Foundation, Inc.  
Charles W. Wright Foundation of  
Badger Meter, Inc.  
Wunsch American Foundation

*\$500 or more:*

American Airlines, Inc.  
Anonymous  
AVCO Corporation  
Mr. and Mrs. Frank C. Baldwin  
Mr. Harry Hood Bassett  
Mr. Arthur W. Bedell  
Brotherton-DiGiorgio Corporation  
Mr. and Mrs. C. Emery Buffum  
Mrs. W. Randolph Burgess  
Mr. Carter Cafritz  
Charities Aid Fund  
China Airlines  
Mr. and Mrs. Edward T. Choy  
Mr. R. Coaley  
Mr. Sheldon R. Coons  
Mr. John M. Crawford, Jr.  
Dr. and Mrs. Willis N. Dickens  
Mrs. Helen W. Edey  
Educational Audio Visual, Inc.  
Emery Air Freight

Mr. and Mrs. Ralph H. Fisher  
Mr. Robert B. Flint  
Mr. and Mrs. Robert W. Fuller III  
Dr. and Mrs. Carl E. Gericke  
The B. F. Goodrich Company  
Guide Foundation  
Edith G. Halpert Foundation  
Mrs. Francis Head  
Institute of Psychiatry and  
Foreign Affairs  
The IX Foundation  
S. C. Johnson and Son, Inc.  
Mr. E. P. Jones  
Josten Fund, Inc.  
Mr. James G. Kenan  
Mr. and Mrs. Fleming Law  
James A. MacDonald Foundation  
The Magnavox Foundation  
Mrs. Margaret McClellan  
Ellen McCluskey Associates

*\$500 or more—continued:*

Mr. and Mrs. John McGreevey	Mr. Carl H. Pforzheimer, Jr.
Mr. Henry P. McIlhenny	Mr. John Shedd Reed
Mr. and Mrs. K. M. McLaren	Dr. Ira Rubinoff
Dr. and Mrs. Leo A. McNalley	Santa Fe Industries, Inc.
Mr. Robert L. McNeil, Jr.	The Norine and Otilie
Mr. and Mrs. Walter W. Meiers	Schillig Foundation, Inc.
Mrs. Constance L. Mellen	Mr. Sidney N. Shure
Mr. Paul Mellon	Shuttleworth Carton Co.
Dr. and Mrs. Matthew Michiewicz	Mr. Robert H. Smith
Mr. and Mrs. Arthur H. Miller	E. R. Squibb and Sons, Inc.
Mr. and Mrs. Bernard Nath	Mr. and Mrs. Irwin R. Stone
The Nature Conservancy	Levi Strauss Foundation
Nautilus Foundation, Inc.	Strayer College
Mr. Otto Natzler	Mr. and Mrs. John L. Tishman
Mr. Edward Neinken	Mr. Chi-Chuan Wang
Mr. Mortimer Neinken	Mr. and Mrs. Harold I. Westcott
PACCAR Foundation	Winn-Dixie Stores, Inc.

We also gratefully acknowledge other contributions in the amount of \$229,197.80 received from more than 5,000 contributors in fiscal year 1974.

PEAT, MARWICK, MITCHELL & CO.

CERTIFIED PUBLIC ACCOUNTANTS  
1025 CONNECTICUT AVENUE, N. W.  
WASHINGTON, D. C. 20036

The Board of Regents  
Smithsonian Institution:

We have examined the balance sheet of the Private Funds of Smithsonian Institution as of June 30, 1974 and the related statement of changes in fund balances for the year then ended. Such statements do not include the accounts of the National Gallery of Art, the John F. Kennedy Center for the Performing Arts, nor other departments, bureaus and operations administered by the Institution under Federal appropriations as detailed in note 3 to the financial statements. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the aforementioned financial statements present fairly the financial position of the Private Funds of Smithsonian Institution at June 30, 1974 and the changes in its fund balances for the year then ended, in conformity with generally accepted accounting principles which, except for the changes referred to in note 1a to the financial statements, with which we concur, have been applied on a basis consistent with that of the preceding year.

PEAT, MARWICK, MITCHELL & CO.

September 5, 1974



# SMITHSONIAN INSTITUTION - PRIVATE FUNDS

## Balance Sheet

June 30, 1974

(with comparative figures for 1973)

<i>Assets</i>	<i>1974</i>	<i>1973</i>
<b>CURRENT FUNDS:</b>		
Cash:		
In U. S. Treasury .....	\$ 139,352	293,324
In banks and on hand .....	651,485	413,499
Total cash .....	790,837	706,823
Investments (note 2) .....	8,298,318	6,223,305
Receivables:		
Accounts, less allowance for doubtful accounts of \$200,000 (\$194,486 in 1973) .....	1,247,671	935,486
Advances — travel and other .....	203,705	172,568
Reimbursement — grants and contracts .....	2,261,103	1,061,872
Due from agency funds .....	136,151	—
Total receivables .....	3,848,630	2,169,926
Inventories .....	780,054	602,254
Prepaid expenses .....	420,272	456,659
Deferred expenses .....	1,208,561	769,670
Total current funds .....	\$15,346,672	10,928,637
<b>ENDOWMENT AND SIMILAR FUNDS:</b>		
Cash and receivables for securities sold .....	506,035	359,353
Notes receivable .....	49,966	51,486
Due from current funds .....	239,967	—
Investments (note 2) .....	40,043,593	41,266,827
Loan to U. S. Treasury in perpetuity at 6% .....	1,000,000	1,000,000
Total endowment and similar funds .....	\$41,839,561	42,677,666
<b>PLANT FUNDS:</b>		
Due from current funds .....	1,934,519	938,480
Real estate (note 5) .....	4,847,870	3,471,825
Equipment, less accumulated depreciation of \$409,830 (\$303,385 in 1973) (note 4) .....	237,025	328,107
Total plant funds .....	\$ 7,019,414	4,738,412
<b>AGENCY FUNDS:</b>		
Investments .....	10,000	—
Due from current funds .....	213,100	130,814
Total agency funds .....	\$ 223,100	130,814

See accompanying notes to financial statements.

# SMITHSONIAN INSTITUTION - PRIVATE FUNDS

## Balance Sheet

June 30, 1974

(with comparative figures for 1973)

### *Liabilities and Fund Balances*

1974

1973

#### CURRENT FUNDS:

Accounts payable and accrued liabilities .....	\$ 2,596,331	1,701,665
Due to plant funds .....	1,934,519	938,480
Due to agency funds .....	213,100	130,814
Due to endowment and similar funds .....	239,967	—
Deferred income:		
Magazine subscriptions .....	3,645,757	2,746,892
Other .....	334,955	290,560
Total liabilities .....	<u>8,964,629</u>	<u>5,808,411</u>
Fund balances:		
Unrestricted:		
General purpose .....	3,066,594	2,292,017
Special purpose .....	460,544	201,491
Total unrestricted .....	<u>3,527,138</u>	<u>2,493,508</u>
Restricted .....	2,854,905	2,626,718
Total fund balances .....	<u>6,382,043</u>	<u>5,120,226</u>
Total current funds .....	<u>\$15,346,672</u>	<u>10,928,637</u>

#### ENDOWMENT AND SIMILAR FUNDS:

Fund balances:		
Endowment .....	34,999,970	35,844,768
Quasi-endowment:		
Restricted .....	2,286,057	2,304,158
Unrestricted .....	4,553,534	4,528,740
Total quasi-endowment .....	<u>6,839,591</u>	<u>6,832,898</u>
Total endowment and similar funds .....	<u>\$41,839,561</u>	<u>42,677,666</u>

#### PLANT FUNDS:

Note payable (note 4) .....	191,843	295,761
Mortgage notes payable (note 5) .....	349,617	432,534
Accrued liabilities .....	36,832	—
Fund balances:		
Acquisition fund:		
Unrestricted .....	933,661	—
Restricted .....	964,026	938,480
Investment in plant .....	<u>1,897,687</u>	<u>938,480</u>
Total plant funds .....	<u>\$ 7,019,414</u>	<u>4,738,412</u>

#### AGENCY FUNDS:

Due to current funds .....	136,151	—
Deposits held in custody for others .....	86,949	130,814
Total agency funds .....	<u>\$ 223,100</u>	<u>130,814</u>

# SMITHSONIAN INSTITUTION — PRIVATE FUNDS

## Statement of Changes in Fund Balances

Year ended June 30, 1974

	Total current funds	Total unrestricted funds
REVENUE AND OTHER ADDITIONS:		
Auxiliary enterprises revenue .....	\$12,615,044	12,615,044
Federal grants and contracts .....	9,967,552	—
Investment income (net of \$108,752 management and custodian fees) .....	2,158,982	729,476
Gains (losses) on sale of securities .....	(16,243)	(16,243)
Gifts, bequests, and foundation grants .....	2,503,499	533,824
Additions to equity in real estate and capitalized equipment (including \$110,000 of land acquired in prior year) .....	—	—
Rentals, fees, and commissions .....	618,773	618,773
Other — net .....	753,409	207,308
Total revenue and other additions .....	28,601,016	14,688,182
EXPENDITURES AND OTHER DEDUCTIONS:		
Research and educational expenditures .....	12,662,553	695,060
Administrative expenditures .....	3,386,476	916,804
Auxiliary enterprises expenditures .....	10,619,160	10,619,160
Expended for real estate and equipment .....	—	—
Retirement of indebtedness .....	—	—
Interest on indebtedness .....	—	—
Depreciation .....	—	—
Total expenditures and other deductions .....	26,668,189	12,231,024
TRANSFERS AMONG FUNDS — ADDITIONS (DEDUCTIONS):		
Mandatory — principal and interest on note .....	(103,917)	(103,917)
Portion of investment gain appropriated .....	355,376	34,321
For plant acquisition .....	(1,015,000)	(1,015,000)
Income added to endowment principal .....	(71,106)	—
Appropriated as quasi-endowment .....	(100,446)	(100,446)
For designated purposes .....	(35,917)	(238,486)
Endowment released .....	300,000	—
Net increase in activities .....	—	—
Total transfers among funds — additions (deductions) ...	(671,010)	(1,423,528)
Net increase (decrease) for the year .....	1,261,817	1,033,630
Fund balances at June 30, 1973 .....	5,120,226	2,493,508
Fund balances at June 30, 1974 .....	\$ 6,382,043	3,527,138

See accompanying notes to financial statements.



Current funds				Endowment and similar funds	Plant funds	
Unrestricted					Acquisition	Investment in plant
General	Activities	Special purposes	Restricted			
—	12,473,118	141,926	—	—	—	—
—	—	—	9,967,552	—	—	—
726,312	—	3,164	1,429,506	—	—	—
(16,243)	—	—	—	(480,095)	—	—
150,586	259,881	123,357	1,969,675	105,260	1,187,502	—
—	—	—	—	—	—	1,583,504
511,779	—	106,994	—	—	—	—
173,797	2,224	31,287	546,101	—	144,859	(5,261)
546,231	12,735,223	406,728	13,912,834	(374,835)	1,332,361	1,578,243
571,236	—	123,824	11,967,493	—	—	—
442,974	461,298	12,532	2,469,672	—	—	—
—	10,503,508	115,652	—	—	—	—
—	—	—	—	—	1,281,409	—
—	—	—	—	—	192,095	—
—	—	—	—	—	33,930	—
—	—	—	—	—	—	106,445
1,014,210	10,964,806	252,008	14,437,165	—	1,507,434	106,445
(103,917)	—	—	—	—	103,917	—
34,321	—	—	321,055	(355,376)	—	—
1,015,000	—	—	—	—	1,015,000	—
—	—	—	(71,106)	71,106	—	—
(100,446)	—	—	—	100,446	—	—
(314,459)	(28,360)	104,333	202,569	20,554	15,363	—
—	—	—	300,000	(300,000)	—	—
742,057	(1,742,057)	—	—	—	—	—
242,556	(1,770,417)	104,333	752,518	(463,270)	1,134,280	—
774,577	—	259,053	228,187	(838,105)	959,207	1,471,798
2,292,017	—	201,491	2,626,718	42,677,666	938,480	3,071,637
1,066,594	—	460,544	2,854,905	41,839,561	1,897,687	4,543,435

# SMITHSONIAN INSTITUTION - PRIVATE FUNDS

## Notes to Financial Statements

June 30, 1974

### 1. Summary of Significant Accounting Policies

- a. **Accrual Basis** — The financial statements of Smithsonian Institution have been prepared on the accrual basis, except for depreciation accounting as explained in note 1g below, and are in conformity with generally accepted accounting principles included in the recently issued American Institute of Certified Public Accountants Audit Guide "Audits of Colleges and Universities". In accordance with the requirements of the Guide, annual leave and interest income on endowment and similar fund investments have been accrued at June 30, 1974 and, in addition, certain changes in financial statement classification have been adopted. The effect of such changes in classifications on beginning fund balances is as follows:

	Current funds		Endowment and similar funds		Plant funds	Agency funds
	Unrestricted	Restricted	Endowment	Quasi-endowment		
Balance at June 30, 1973 as previously reported	\$2,323,958	3,897,908	36,913,730	5,763,936	3,039,291	—
Reclassify fund restricted for construction and acquisition of real estate	—	(938,480)	—	—	938,480	—
Reclassify funds that are internally restricted by the Institution	201,896	(201,896)	—	—	—	—
Net assets transferred to plant fund	(32,346)	—	—	—	32,346	—
Reclassify miscellaneous funds to agency status	—	(130,814)	—	—	—	130,814
Reclassify endowments	—	—	(1,068,962)	1,068,962	—	—
Balance at June 30, 1973 as restated	\$2,493,508	2,626,718	35,844,768	6,832,898	4,010,117	130,814

Current funds used to finance the acquisition of plant assets and for provisions for debt amortization and interest are accounted for as transfers to the plant fund.

- b. **Fund Accounting** — In order to ensure observance of limitations and restrictions placed on the use of the resources available to the Institution, the accounts of the Institution are maintained in accordance with the prin-

ciples of "fund accounting". This is the procedure by which resources for various purposes are classified for accounting and reporting purposes into funds that are in accordance with activities or objectives specified. Separate accounts are maintained for each fund; however, in the accompanying financial statements, funds that have similar characteristics have been combined into fund groups. Accordingly, all financial transactions have been recorded and reported by fund group.

Within each fund group, fund balances restricted by outside sources are so indicated and are distinguished from unrestricted funds allocated to specific purposes by action of the governing board. Externally restricted funds may only be utilized in accordance with the purposes established by the source of such funds and are in contrast with unrestricted funds over which the governing board retains full control to use in achieving any of its institutional purposes.

Endowment funds are subject to the restrictions of gift instruments requiring in perpetuity that the principal be invested and the income only be utilized. Also classified as endowment funds are gifts which will allow the expenditure of principal but only under certain specified conditions.

Unrestricted quasi-endowment funds have been established by the governing board for the same purposes as endowment funds, any portion of such funds may be expended. Restricted quasi-endowment funds represent gifts for restricted purposes where there is no stipulation that the principal be maintained in perpetuity or for a period of time, but the governing board has elected to invest the principal and expend only the income for the purpose stipulated by the donor.

All gains and losses arising from the sale, collection, or other disposition of investments and other noncash assets are accounted for in the fund which owned such assets. Ordinary income derived from investments, receivables, and the like, is accounted for in the fund owning such assets, except for income derived from investments of endowment and similar funds, which income is accounted for in the fund to which it is restricted or, if unrestricted, as revenues in unrestricted current funds.

All other unrestricted revenue is accounted for in the unrestricted current fund. Restricted gifts, grants, endowment income, and other restricted resources are accounted for in the appropriate restricted funds.

- c. Investments are recorded at cost or fair market value at date of acquisition when acquired by gift.
- d. Inventories are carried at lower of average cost or net realizable value.
- e. Income and expenses in respect to the Institution's magazine and associates' activities are deferred and taken into income and expense over the applicable periods and are reported in the activities section of the current unrestricted funds.
- f. Endowment and Similar Fund Investments — The Institution utilizes the "total return" approach to investment management of endowment funds and quasi-endowment funds. Under this approach, the total investment return is considered to include realized and unrealized gains and losses in addition to interest and dividends. In applying this approach, it is the Institution's policy to provide 4½% of the five year average of the market value of each fund (adjusted for gifts and transfers during this period) as being available for current expenditures; however, where the market value of the assets of any fund is less than 110% of the historic dollar value (value of gifts at date of donation) the amount provided is limited to only interest and dividends received.



g. Plant Fund Assets — Plant fund assets are recorded as follows:

Museum shop and computer equipment purchased with Private Funds is capitalized in the plant fund at cost, and is depreciated on a straight-line basis over an estimated useful life of five years.

Real estate (land and buildings) are recorded in the plant fund at cost, to the extent that restricted or unrestricted funds were expended therefor, or appraised value at date of gift, except for gifts of certain islands in Chesapeake Bay, Carnegie Mansion, and Hillwood Estate which have been recorded at nominal values. Depreciation on buildings is not recorded.

All the other land and buildings (principally acquired with Federal funds), fixtures, equipment, works of art, living or other specimens are not reflected in the accompanying financial statements.

Funds, previously recorded in the current funds group, whose purpose is for construction and acquisition of plant assets, have been reclassified to plant funds.

h. Agency Funds — The agency funds group consists of funds held by the Institution as custodian or fiscal agent for others.

i. Pension Costs — All pension costs are funded as accrued.

## 2. Investments

Quoted market values and carrying values of investments (all marketable securities) of the funds indicated were as follows:

	June 30, 1974		June 30, 1973	
	Carrying value	Market value	Carrying value	Market value
Current funds .....	\$ 8,298,318	7,971,088	6,223,305	6,078,226
Endowment and similar funds .....	40,043,593	34,822,438	41,266,827	43,530,142
Total investments ..	<u>\$48,341,911</u>	<u>42,793,526</u>	<u>47,490,132</u>	<u>49,608,368</u>

Total investment performance is summarized below:

	Net gains (losses)		
	Current funds	Endowment and similar funds	Total
Unrealized gains (losses):			
June 30, 1974 .....	\$(327,230)	(5,221,155)	(5,548,385)
June 30, 1973 .....	<u>(145,079)</u>	<u>2,263,315</u>	<u>2,118,236</u>
Increase in unrealized gains (losses) for year	(182,151)	(7,484,470)	(7,666,621)
Realized net losses for year ...	<u>(16,243)</u>	<u>(480,095)</u>	<u>(496,338)</u>
Total net losses for year	<u>\$(198,394)</u>	<u>(7,964,565)</u>	<u>(8,162,959)</u>

Assets of the endowment and similar funds having a carrying value of \$11,845,384 are pooled on a market value basis (consolidated fund) with each individual fund subscribing to or disposing of units on the basis of

the value per unit at market value at the beginning of the calendar quarter within which the transaction takes place. Of the total units each having a market value of \$84.60 (\$105.22 in 1973), 67,856 units were owned by endowment, and 52,665 units by quasi-endowment at June 30, 1974.

3. *Related Activities*

Federal appropriations, which are not reflected in the accompanying financial statements, provide major support for the operations and administration of the educational and research programs of the Institution's many museums, art galleries and other bureaus, as well as for the maintenance and construction of related buildings and facilities. In addition, land, buildings and other assets acquired with Federal funds are not reflected in the accompanying financial statements.

The following Federal appropriations were received by the Institution for the fiscal year ended June 30, 1974:

Operating funds .....	\$60,562,900
Special foreign currency program .....	4,500,000
Construction funds .....	21,860,000
	<u>\$86,922,900</u>

4. *Note Payable*

The note payable in the principal amount of \$191,843 (\$295,761 in 1973) which is non-interest bearing, is secured by computer equipment and is payable in monthly installments of \$7,993 to June 30, 1976.

5. *Mortgage Notes Payable*

The mortgage notes payable are secured by first deeds of trust on property acquired in connection with the Chesapeake Bay Center. The details of the mortgage notes payable are as follows:

	<u>June 30,</u>	
	<u>1974</u>	<u>1973</u>
Mortgage note, payable in semi-annual installments of \$13,300, plus interest at the prevailing prime rate at the due date of the installment payment but not less than 8%, due July 1, 1980 .....	\$172,900	199,500
6% mortgage note payable, due in monthly installments of \$451 including interest, due November 1, 1989 .....	36,717	33,034
6% mortgage note, payable in semi-annual installments of \$10,000, plus interest, due November 7, 1979 .....	110,000	140,000
7% mortgage note, payable in annual installments of \$30,000, plus interest, due November 1, 1974 ....	30,000	60,000
	<u>\$349,617</u>	<u>432,534</u>

6. *Pension Plan*

The Institution has a contributory pension plan providing for the purchase of retirement annuity contracts for all employees meeting certain age and length of service requirements. Under terms of the plan, the Institution contributes the amount necessary to bring the total contribution to 12% of the participants' compensation subject to social security taxes and to 17% of the participants' compensation in excess of that amount. The total pension expense for the year was \$729,068 (\$688,782 in 1973).



The Queen of Thailand and His Excellency The Ambassador of Thailand are greeted by Dr. Edward S. Ayensu (right), Chairman of the Department of Botany and then Acting Director of the National Museum of Natural History, and Mr. Meredith Johnson (left), Special Events Officer, upon their visit to the Museum.



## SCIENCE

THE PAST YEAR in Science was characterized by a steady progress toward the goals outlined at the first institutional priorities conference at Belmont in 1973. In addition, efforts were directed to re-appraising and redefining certain management structures in order to find new and better methods to build on to traditional strengths. This effort is in line with the discussions resulting from the Institution's second priorities conference last February.

The Museum of Natural History focused attention this past year on its educational role, exploring new avenues to enrich the visitors' experience. The formation of an in-house exhibits committee was a first step in the Museum's desire to seek new directions in exhibitry. The opening of the Touch Exhibit focused the public's attention on alternate methods to the traditional museum experience.

The National Zoological Park obtained a permit to the former Army Remount Station at Front Royal, Virginia, for use as a breeding farm, especially for endangered species. The new facility, it is hoped, will allow for increased propagation of rare animals, away from the limited space of Rock Creek Park.

Early in the fiscal year, the Smithsonian Astrophysical Observatory joined with the Harvard College Observatory to form the Center for Astrophysics. The new arrangement has led to more flexibility in personnel and programs, increasing joint resources for maximum use.

The Chesapeake Bay Center for Environmental Studies continued to progress toward a goal of increased educational opportunities for neighboring schools and disadvantaged urban youth. A new building, which will house the educational and visitor orientation activities, was planned and bids were received for the work. The new

building will release office and lab space now jointly used for research and educational activities. Another program undertaken was the Information Transfer Program which translates scientific results into forms that can be useful to planners and government officials. Money for this program was made available from the Edward John Noble Foundation.

The Smithsonian Tropical Research Institute (STRI) underwent a change of directorship this past year with the return of Dr. Martin Moynihan to his research as Senior Scientist at STRI. He was succeeded by Dr. Ira Rubinoff, who previously served as Assistant Director at the facility. The research undertaken at STRI continued to be primarily concerned with basic scientific questions of the evolutionary and ecological adaptations of tropical organisms. An increased education program was undertaken with grants received from the Henry L. and Grace Doherty and Edward John Noble foundations.

The National Air and Space Museum's new building continued on schedule and within the budget began to rise and take form on the Mall this past year with much of the staff's time being spent on the preparation of exhibits that will be displayed in the new quarters. The formation of the Center for Earth and Planetary Studies in the Museum provides the basis for a scientific research arm in lunar studies.

The Office of International and Environmental Programs was established this past year combining the Offices of International Activities and Environmental Sciences. The new Office is designed to further increase opportunities for the Smithsonian to conduct research abroad in its traditional strengths in collection-based natural history to the comparatively new area of environmental studies. Wymberley Coerr, a career foreign service officer who served as Ambassador to Ecuador and Uruguay, was appointed to head the Office.

In the past year, Smithsonian support of conservation in the Galapagos Islands has increased substantially in response to a significant rise in the number of contributions earmarked for Galapagos work. Aided by the Research Station's new director, Craig MacFarland, administration and equipment have been markedly strengthened, and research expanded to include a marine biological survey, to help determine the limits of the National Park. In addition, two Smith-

sonian research teams have recently visited the islands, one to continue studies of volcanic activity of Isla Fernandina and the other to begin a study of finches and orb-weaving arachnids. Educational programs in the islands were augmented by the Smithsonian helping to fund a volunteer from the Catholic Institute for International Relations, who is teaching biology, natural history, and conservation as well as aiding in the marine survey. Additionally, a SI-Peace Corps volunteer is working on the design of exhibits to the new Van-Straelen museum/lecture hall, which will provide natural history instruction for both tourists and Galapagueños.

The Smithsonian once again played a significant role in national and international affairs. Smithsonian scientists and administrators provided representatives and advisory services to the Council on Environmental Quality, the Department of the Interior, the Institute of Ecology, the First International Congress of Systematic and Evolutionary Biology, the Asia Society, the Bahamas National Trust, and the World Wildlife Fund. The staff has traveled to diverse places in the United States and abroad including the Bahamas, the United Kingdom, Switzerland, India, and Nepal. Smithsonian scientists continued their fruitful collaboration with foreign institutions on every continent and provided technical assistance on environmental programs.

Details of these concerns and scientific accomplishments in other areas of research by the individual bureaus, in fiscal year 1974, follow.

### *Center for the Study of Man*

Over the past year the Center for the Study of Man has expanded and sharpened its research activities in the human sciences. From August 26 to September 2, 1973, three conferences organized by the Center were held in Oshkosh, Wisconsin. Two more conferences were held during the same period at Chicago, Illinois. Immediately following these meetings each of the conferences reported its findings to the assembled attendees at the IXth International Congress of Anthropological and Ethnological Sciences meeting in Chicago, Illinois, from September 3 to 10. The 5 sessions organized by the



Center for the Study of Man were: (1) cross-cultural uses of cannibus; (2) cross-cultural uses of alcohol; (3) examination of a general theory of cultural transmission; (4) cultural consequences of population change; and (5) economic development in seven selected American Indian groups. Each of these research projects was an outcome of the Center's program to relate anthropology and the human sciences to modern worldwide problems. All reports are now in one or another stage of preparation for publication.

Specifically, the cannibus report is in press, and it constitutes the first well-documented report of cannibus usage on a worldwide basis. The coverage is not complete, but it constitutes a beginning and lays the groundwork for an accelerated growth of knowledge in the immediate future. The papers in the alcohol volume, also in press, testify to the increasing worldwide sophistication of human scientists about alcohol usage and its perception in cultures around the world. The general theory of cultural transmission considers education as a special case. Because Western-style formal education is so pervasive, it is especially important to learn more about other perspectives on cultural transmission. The results of the conference on population are in press, but the project is not yet complete. A number of participants from developing countries met in Bucharest, Rumania, in August to go over papers that have come out of the Oshkosh and Chicago meetings. The American Indian economic development study is in press and should appear within a year.

Manuscripts for the forthcoming encyclopedic *Handbook of North American Indians* continue to arrive daily. The editorial office, with the assistance of volume editors in various parts of the country, is editing these works for publication in 1976.

The Research Institute on Immigration and Ethnic Studies, under the direction of Dr. Roy Bryce-Laporte, has been supervising research in Costa Rica and Panama. In particular, it has focused on the West Indian adaptation and experience in both of these countries. It has also been reviewing policy implications of migration and some contemporary perspectives on alienation.

In June 1974, a National Anthropological Film Center was established within the Center for the Study of Man. It is charged with the preservation and study of visual information on vanishing and changing ways of life.

## *Chesapeake Bay Center for Environmental Studies*

The three programs of the Chesapeake Bay Center for Environmental Studies — scientific research, information transfer, and environmental education — were marked by expansion and innovation during 1974.

At the 2500-acre Center near Annapolis, a long-term study of the Rhode River watershed continues with NSF-RANN (National Science Foundation-Research Applied to National Needs) as the major source of funding. The current grant extends through September 1974 and was made through the Chesapeake Research Consortium, composed of the Smithsonian Institution, the Johns Hopkins University, the University of Maryland, and the Virginia Institute of Marine Science.

Thirteen NSF-funded projects are underway at the Center. They are part of the Consortium's effort to determine the environmental impact of alternate levels of sewage effluent loading in specified parts of the Bay.

The Center's contribution is to provide understanding of the biological functioning of an ecosystem and from this to devise methods for determining the impact of sewage effluent. Projects include investigations of the amount of groundwater and runoff in the Rhode River watershed, the circulation patterns of the estuary, and the water exchange with the Bay. Water samples collected at stations in the estuary are analyzed for chemical content.

Stream gauging wiers were constructed during the year to record the volume of water flowing from five subwatersheds and to take volume-integrated water samples. Scientists at the Center analyze these samples for total phosphorus, total nitrogen, organic carbon, and suspended sediment.

With the aid of computer printouts of aerial photographs, scientists are developing a key for identifying salt-marsh vegetation. Funding is provided through the National Aeronautics and Space Administration as part of a remote sensing project underway at the Center since 1970. This year the Center began preparing land-use maps of the Rhode River watershed based on these photographs. The maps will be a valuable tool for a number of investigators and for agencies concerned with the environment.

Since the beginning of the fiscal year, college students, under the supervision of the Assistant Director, have conducted a survey of the recreational use of the Rhode River.

Two staff members are studying the mammals of Poplar, Coaches, and Jefferson Islands. Owned by the Smithsonian and administered by the Center, these islands off Talbot County on Maryland's Eastern Shore are eroding at different rates and offer an unusual opportunity to study the effect on mammal populations of rapidly diminishing habitats in a closed system.

Among the Center's continuing studies is "Population Dynamics in Breeding Birds," begun in 1968 and projected for a 20-year period. Objectives include the determination of species succession resulting from successful changes in vegetation.

#### INFORMATION TRANSFER

Funded with a grant from the Edward John Noble Foundation, the Information Transfer Program has as its goal the translation of scientific results into forms which can be used by planners, government officials, and resource managers who make decisions that affect the Bay. In addition, the program makes environmental information available to organizations and individuals.

Projects undertaken this year include a survey of environmental organizations in the Chesapeake Bay area. An environmental information specialist sought to determine the issues that most concern these organizations and the extent of their contacts with State officials and legislators. She also evaluated the effectiveness of the organizations and interviewed scientists to find out what lines of communication exist between them and the general public.

The Center co-sponsored with the Anne Arundel County Chapter of the Chesapeake Bay Foundation preliminary meetings which resulted in the formation of the South County Citizens League, composed of representatives of citizens associations. The purpose is to unite organizations and individuals in the intelligent examination of probable future issues in order to influence public policies and action.

An all-day workshop on environmental problems was arranged for the Maryland League of Women Voters and attended by representatives of a number of organizations and agencies.





The *Rhode Worker*, added to the Chesapeake Bay Center's fleet during the year, is used for projects related to the NSF-funded Rhode River Research Program. One of these projects is "Nutrient Studies on the Rhode River Ecosystem," in which samples from 13 stations in a freshwater creek and the estuary are tested for 16 qualities, either at the collection site or in the laboratory below.



## EDUCATION

A description of the Center's tours and programs was distributed in the area, facilitating scheduling and resulting in an increased number of requests for this service.

The Center chartered a bus through a nonprofit line sponsored by the Community Action Agency and arranged to bring a different group of sixth graders from five local schools to the Center each week for "The Living Community," a project that stresses the inter-relationship of living things. Before each visit, a staff member made a preparatory presentation in the classroom.

The Rhode River Environmental Education Project, one of the Center's most ambitious educational efforts, got underway in the fall of 1973 after a successful pilot program. With the cooperation of the YMCA of Metropolitan Washington, a different group of tenth graders from 16 District of Columbia schools resided for four days at a YMCA camp adjoining the Center. The students used the Center for field work, and college students served as counsellors. The curriculum, designed by the Assistant Director and an Education Specialist, focused on man's relationship to his environment.

The Summer Ecology Program, an intensive course for school children from the elementary grades through high school, was initiated in the summer of 1973 and will continue in 1974. College students who plan to teach the natural sciences instruct the children. The program provides the instructors with teaching experience and the children with an enriching supplement to their school work.

The Center arranged an all-day workshop for science teachers from all over the country who were enrolled in a summer institute sponsored by the National Science Foundation. Similar workshops are planned for the summer of 1974.

Continuing education activities include opportunities for college students to work with staff scientists on specific projects and providing speakers for schools, colleges, and organizations.

## STAFF

The Center's full-time staff numbered approximately 40 at the close of the fiscal year. Among the additions were Dr. Barbara Rice, Research Specialist with the Remote Sensing Project; Dr. Maria Faust, Biologist; Dr. Tung Lin Wu, Chemist; Dr. John Falk, Educa-



tion Coordinator; Marjorie Beane, Environmental Information Specialist; and Lynne Mormann, Education Specialist.

Some 40 additional researchers are actively engaged in projects at the Chesapeake Bay Center, including principal investigators for the Rhode River Research Program from the Johns Hopkins University and the University of Maryland.

#### FACILITIES

Ground was broken in the spring for a combined Visitor Center and Education Building scheduled for completion in the fall. This will be the first new structure to be built at the Center since its establishment in 1965.

The Center procured seven house trailers to alleviate a shortage of space for offices, laboratories, and dormitory facilities.

A 28-foot fiberglass cabin cruiser, the *Rhode Worker* was added to the Center's fleet. Purchased with funds from the NSF-RANN grant, this boat is used for projects included in the Rhode River Research Program. Five other boats, including the 46-foot *Java*, are docked at the Center's pier.

#### Fort Pierce Bureau

The primary research emphasis by the Fort Pierce Bureau this year is the Indian River Study, a consortium effort initiated in September of 1973, with a grant from the Atlantic Foundation. The Smithsonian's 130-foot-floating-laboratory barge is the focal point for the Study, the chief aims of which are to obtain baseline information on the diversity of organisms and quality of their environment, sources of pollution and their effects on organisms, and a predictive capability of both short- and long-term effects on man-induced changes. To date, over 500 sampling stations have been occupied on 22 off-shore cruises by the RV *Gosnold*, 10 cruises have been made in the Indian River lagoon on a specially modified houseboat research vessel to make *in situ* environmental measurements, and fish and benthic samples have been repetitively collected at 36 stations and 4 transects within the Indian River.

Life-history studies of marine animals have continued through the second year with stress on reproductive biology, developmental patterns, and larval development of unsegmented marine worms of

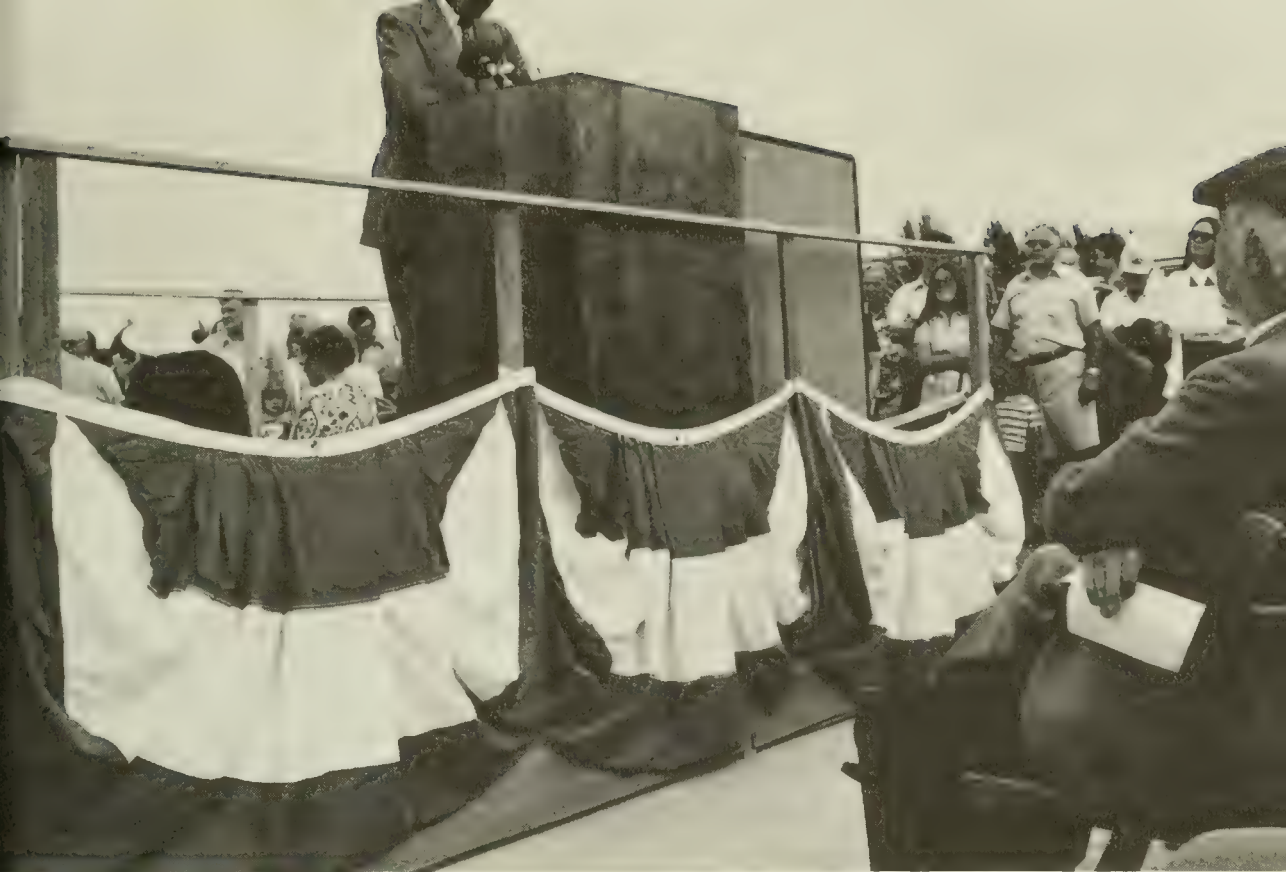


the phylum Sipuncula. More than 20 larval sipunculans of unknown species have been collected from the Gulf Stream off Fort Pierce, Florida; these have been raised in the laboratory and studies made of their morphology by use of scanning electron microscopy and histological procedures. Developmental patterns emerging from this work promise to have important implications for and understanding of the interphyletic and intraphyletic relationships of these organisms.

The former Coast Guard cutter, *Hopley Yeaton*, was christened officially the RV *Johnson* on Saturday, January 26, 1974, by Mrs. J. Seward Johnson during an open-house celebration at Link Port, Florida. An estimated 1500 visitors attended the ceremony to view the Bureau's 125-foot vessel, a tender to the research submarine *Johnson-Sea-Link*, which can be launched and recovered rapidly by a hydraulic crane located at the aft end of the ship. The "mother ship"-submersible-lockout diver system will be used on missions this coming year to explore, photograph, and sample the continental shelf adjacent to the Indian River.

Since the unfortunate entrapment of the *Johnson-Sea-Link* off the Florida Keys in June 1973, considerable effort has been devoted at Link Port to developing rescue systems for small research submarines and to modifying several safety and life-support systems on the *Johnson-Sea-Link*. A surface rescue craft, under construction, will support a cable-controlled unmanned submersible equipped with television and manipulator that can free an entrapped object from a depth in excess of 1000 feet. A second submarine, *Johnson-Sea-Link II*, should be finished by the end of 1974 — a sister submersible with lockout capability can be viewed as an excellent rescue mechanism. Already implemented on the *Johnson-Sea-Link* are an improved high-capacity and high-volume carbon-dioxide scrubber, remote read-out gauges in the pilot's sphere for carbon dioxide and oxygen sensing and monitoring instruments employed in the diving compartment, and redesigned attachment points for handling lines, which employ the break-away concept and eliminate hooks.

During the past several months, two successful cruises have been completed to the Bahamas to train the respective crews of the support ship RV *Johnson* and submarine *Johnson-Sea-Link* as a total system, to launch and recover the submersible from anchor or underway and in a sea state of Beaufort Force 5, to complete training of two qualified submarine pilots, and to perform shallow submarine



S. Dillon Ripley giving dedication address at the commissioning of the Smithsonian's RV *Johnson* at Fort Pierce, Florida, on January 26, 1974. Below: Smithsonian's RV *Johnson* in the Indian River as she departs with the *Johnson-Sea-Link* submersible for a training mission in the Bahamas, March 18, 1974.





and lockout operations under day and night conditions. This conscientious training program, incorporating all aspects of submersible operations, diving and support-equipment handling under the able management of an Operations Director, is the most effective procedure of reducing the accepted level of risk involved in submarine work.

### *National Air and Space Museum*

The progress made in building construction, exhibits, staffing, and research in 1974 leaves little doubt that the National Air and Space Museum is fast becoming one of the most important and exciting bureaus of the Institution.

The construction of the new museum building, which is on schedule, is almost 50 percent complete. The contracts for structural steel and metal decks have been closed out. The marble contract is 65 percent complete. Glass curtain walls and skylights are being installed. By the end of summer, the building will be completely enclosed, which will permit interior work without regard to the elements. As originally forecast, the staff will move into the building in the summer of 1975 and the building will open in July 1976.

The building will contain 25 major exhibition halls and 2 presentation centers; the development of exhibits for these halls has been the major thrust of the museum during 1974 and will continue to be through 1976. The goal for the opening of the building is to have "core" quality exhibits in approximately 50 percent of the available space with well-displayed objects in the remainder of the halls.

During 1974 the following major exhibits were completed:

"Air Traffic Control" — an exhibit which explains the complex equipment and competent personnel who perform behind the scenes in our air traffic network.

"Exhibition Flight" — this exhibit tells the story with artifacts, film, and photos of how exhibition flight caught the imagination of the American public and popularized flying.

"Life in the Universe" — this exhibit examines the birth and death of stars and galaxies; the nature of life and its chemical building blocks; the tools being used to find life; how this life may have evolved, what forms it may have taken, and how we might communicate with it.





Construction moves apace on the new National Air and Space Museum scheduled to open July 4, 1976.

In addition to the major exhibits, the following special exhibits were mounted in 1974:

"Copernicus" — prototype telescope of NASA's Orbiting Astronomical Observatory during the 500th anniversary of Copernicus, the father of modern astronomy.

"Skylab" — America's first experimental space station.

"Aerobatics" — featuring the U.S. World Championship Aerobatics team and one of their aircraft, the Pitts Special.

"Santos-Dumont" — observing the centenary of the birth of this pioneer aircraft designer, aeronaut, aviator, and astronomer.

"Wright Brothers Wind Tunnel" — exhibiting on the 70th anniversary of powered heavier-than-air flight a replica of the wind tunnel with daily demonstrations of its use as a precursor to the first powered flight.

"Space and Artists" — continuing displays of paintings of space and aviation art.

"First World Flight" — traces the first round-the-world flight through photographs and drawings superimposed over a map of the route taken by the pilots in 1924. During the 6-month circumnavigation of the world, the crews endured hardships of extreme cold and heat, accidents, and mechanical failures. The flagplane, *Chicago*, was completely restored by the NASM and is the centerpiece of the exhibit, in the rotunda of the Arts and Industries Building.

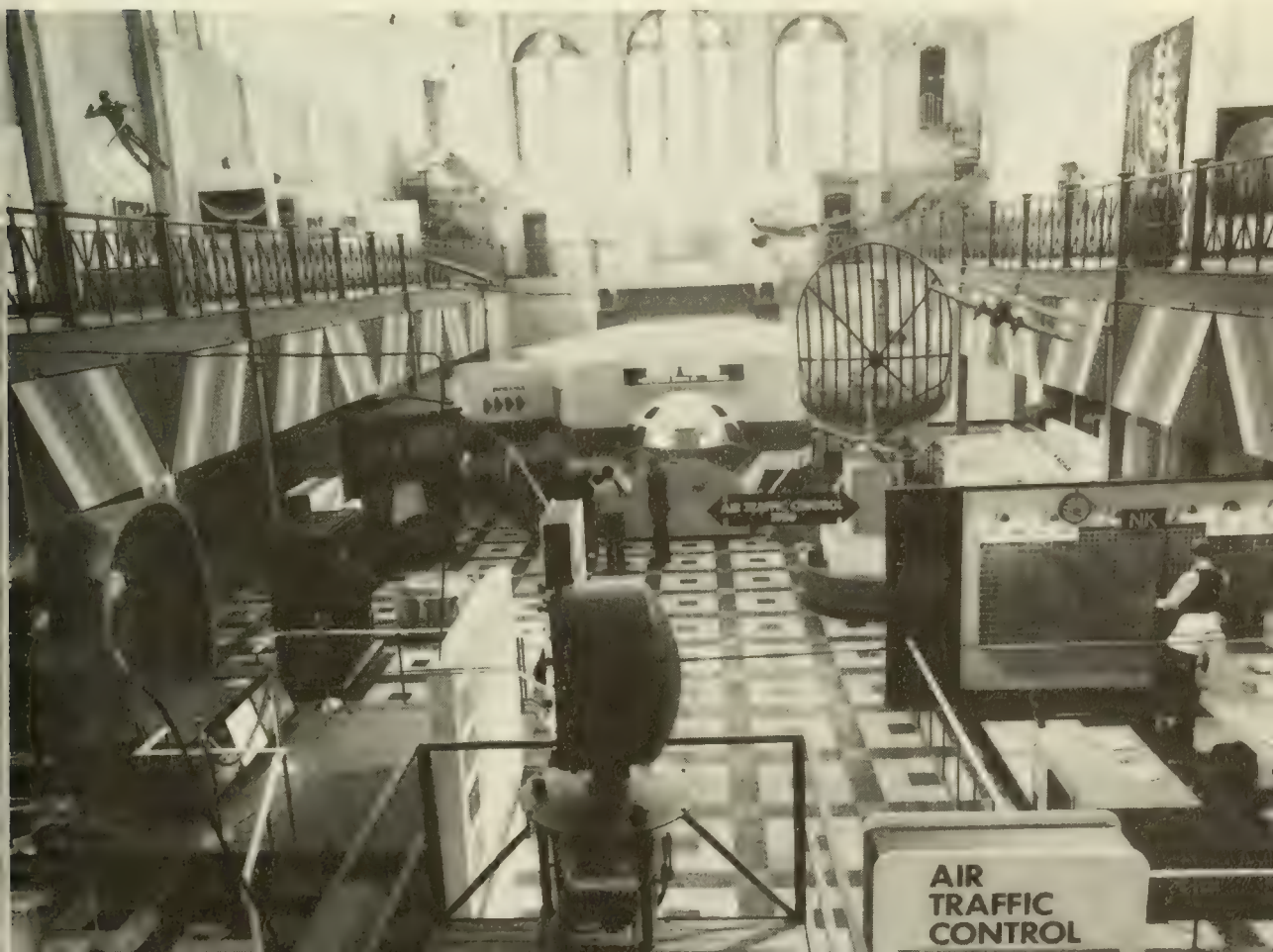
Fiscal year 1974 brought the beginning of a formal program of research to the museum. A Department of Science and Technology was created and staffed with two senior personnel. The implementation of the NASM Science and Technology research program has begun with an analysis of the history and validity of design criteria in use in the air and space industry. A Center for Earth and Planetary Studies was established under the leadership of one of the foremost lunar geologists in the world. At the same time, NASA's comprehensive lunar scientific photograph collection and records were transferred to the museum. The Center has already published several scientific articles. In cooperation with NASA, a lunar mapping program is ongoing. Moreover, the Center Director occupies one of seven seats on the International Astronautical Union (IAU) Task Group on Lunar Nomenclature.

Exhibits-related research is a major NASM activity with the various curatorial departments performing artifact documentary research,





The story of how exhibition flight captured the imagination of the American public and popularized flying is told in the National Air and Space Museum's exhibit, "Exhibition Flight," that opened in March 1974. *Below:* Another exhibit, "Air Traffic Control," that opened in November 1973, explains the complex equipment and competent personnel who perform behind the scenes in air traffic network.





prerestoration curatorial research, and historical research. The NASM Exhibits Division is developing several research programs concerned with the reliability of exhibits components, new exhibits techniques, novel film transport systems, etc.

The large size of today's flying machines, coupled with an ever accelerating pace of aerospace technology, results in tremendous pressure on curators to increase the size of their collections. At the same time, however, the available storage space is not increasing at the same pace. Therefore, in January 1974, an Acquisition Policy Statement was issued for use by the curatorial staff of the NASM. Briefly, the policy indicates that each major addition to the collection should be balanced, wherever possible, by an equivalent deletion or loan. It also places the responsibility for the final approval of the acquisitions of major new artifacts with the Director of the museum. Prior to 1974, the curatorial staff approved acquisitions and the Director approved loans. This policy has now been reversed.

At the time the acquisition policy was enacted, the museum began an all-out effort to review and, where possible, dispose of surplus artifacts, particularly engines, archival material, aircraft models, aircraft, and space material. To date:

1. Fifty engines have been transferred or loaned.
2. Approximately 12,000 cubic feet of miscellaneous material, including books, periodicals, photographs, records, and other documents have been declared surplus or duplicate material and transferred to other institutions. This included over 3,500 periodicals.
3. A complete inventory of the model aircraft collection (numbering over 1,000 models) is under way. The information will be computerized so that the collection can be studied from various criteria such as scale, aircraft type, condition, etc.
4. Twenty-eight astronautic artifacts have been deaccessioned and disposed of.

During fiscal 1974, the Presentations and Education Division was organized with responsibility for developing and implementing three programs: the education program of the museum, Spacearium programs, and programs for the NASM Theater.

The education program includes lectures, tours, and other activities to assist individuals and groups in using the museum, its resources, and publications for effective learning about air and space and related subject matter. In fiscal 1974, 168 tours were conducted by 13 docents and volunteers for over 5000 students.

During fiscal 1974, a small planetarium began an ongoing operation in the Air and Space Building as an experimental laboratory to prepare for the larger Spacearium. Programs were given to general visitors and to a few visiting school classes, and special classes were conducted in this facility for the Smithsonian Associates.

Two pilot programs were initiated in fiscal 1974 at the Silver Hill facility. The first was an adult night class for those who might build and fly their own airplanes, and emphasized safe and rational design, engineering, and maintenance. The second program was designed to teach inner-city children the basic skills required to build and maintain aircraft, including welding, sheet metal and fabric work, engine overhaul, etc. Both programs were well received and will be expanded in the future.

For the second year the museum, in conjunction with the Smithsonian Astrophysical Observatory, hosted an astronomy lecture series. While the first series in 1972 attempted to assess man's current knowledge of the solar system as seen from the planet Earth, the second series, "Beyond the Planets," surveyed our Galaxy and the Universe from the vantage point of the Sun. The series, consisting of eight lectures by some of America's outstanding astronomers, was received with enthusiasm by standing-room-only crowds.

As a special event, the museum sponsored a poetry reading and discussion by Apollo 15 Astronaut Alfred Worden. Astronaut Worden was warmly received as he read selections from his book of poems, *Hello Earth, Greetings From Endeavor*, and discussed his feelings and emotions that prompted him to compose each of the poems. The readings were illustrated by color panoramas made during Apollo 15's epic journey to the Moon.

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Edwood R. Quesada

## *National Museum of Natural History*

There was a bustle of activity on the Museum's first floor in early 1974 as carpenters, scientists, designers, and other Museum craftsmen worked to complete "Ice Age Mammals and the Emergence of Man," the first of a series of new exhibits that will enrich considerably the Museum's educational impact. Long-range plans call for the overhaul and rejuvenation of one permanent exhibit hall every year through 1979. All of these new halls will be thematically structured to convey clearly to the public concepts of evolution that are fundamental to an understanding of the natural world.

To accomplish this change the Museum has departed from its traditional practice of building an exhibit hall around a single departmental discipline. The Ice Age Hall formerly housed a paleontological exhibit devoted to Pleistocene mammals. Its replacement is multidisciplinary, blending objects from the paleontology, mineral science, and anthropology collections, into a thematic context that describes the great physical and biological events of the Ice Age, including the development of the continental glaciers, the evolution of large mammals, the extinction of many of them, and the arrival of man.

The new multidisciplinary thematic exhibits that are in the process of design and production are the result of an entirely new approach to exhibits at the Museum. An advisory committee of Museum scientists, headed by Dr. Leo J. Hickey, has been set up as a liaison between the Museum's professional staff and its exhibits office, directed by Harry T. Hart. A close working relationship has been established that is responsible for the excellence of the new Ice Age Hall and the promise of the Museum's Bicentennial exhibit, "Our Changing Land."

"Our Changing Land," now under development, will chronicle environmental change in the Washington, D.C., area since the arrival of man, stressing what has happened since the founding of the Nation, and explaining the main ecological processes related to the change and what options there may be for the future. The ground floor of the north wing is being prepared for this exhibit.

In addition to renewal of permanent halls and the development of the Bicentennial exhibit, a variety of other exhibit events made 1974 at the Museum an extraordinarily active and vigorous year.





Dr. Porter Kier (left), Director of the National Museum of Natural History, presents an award to David J. Hasinger for making significant additions to the scientific collections of the Museum. Mr. Hasinger is Director of Paul and Beckman, Inc., Philadelphia electronics manufacturer.

Curious children and adults were crowding into the Museum's recently opened Discovery Room where they were urged to keep their hands *on* and not off the exhibits. Elephant tusks, coral, petrified wood, woolly mammoth teeth, and hundreds of other natural history specimens, ordinarily out of reach behind glass or railings in museums, could be grasped, turned over in the hand at one's leisure, and studied with a magnifying glass. If requested, one of the room's docents would make available books and film loops to help take a person farther down the path of discovery. The room added a permanent new dimension to the Museum's offerings.

In another area of the Museum, visitors were experiencing the wonder of setting foot in the interior of a tropical rain forest, one of nature's most complex environments. Modeled of papier-mâché and

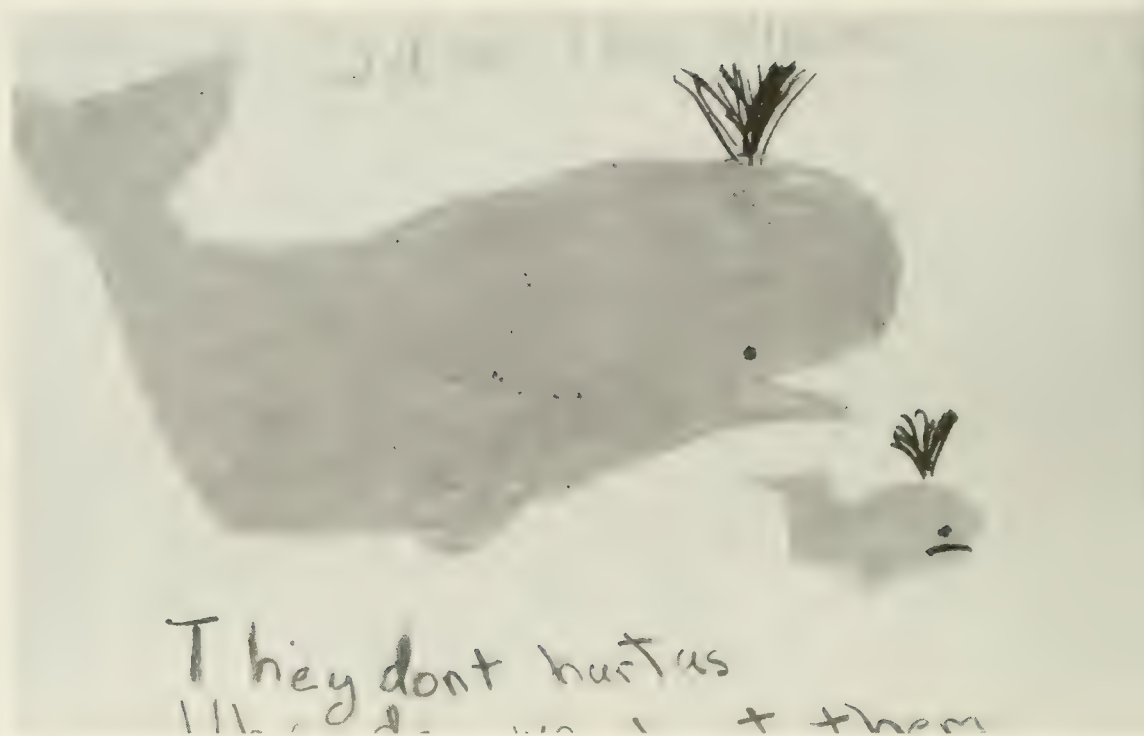


The monkey climbing the vines and the trees and dense foliage of the rain forest are part of an ecological exhibit, "It All Depends," which shows that all environmental elements are interdependent for survival. *Opposite:* A Neanderthal burial scene from the exhibit, "Ice Age Mammals and the Emergence of Man."









One of the drawings by children in the "Save the Whales" exhibition at the National Museum of Natural History.

plastic, after sketches and photographs taken in the Panama and South American jungles, the exhibit's trees, foliage, and vines were enclosed in a mirrored ceiling-high silo. Walking into this dimly lit enclosure, visitors had the illusion that they were in the center of a vast tropical forest — with trees rising 80-100 feet above their heads. This simulated forest was the heart of a larger ecological exhibit, "It All Depends," which made the point that all elements in the environment are dependent upon each other for survival.

Looking alertly out from an "arctic ice floe" in the west end of the Life in the Sea Hall was an imposing new Museum presence, a mounted specimen of that largest of the fin-footed aquatic animals — the sea walrus. Beneath its icy perch a visitor could see an informative film about it and other pinnipeds, a family of mammals that besides the walrus includes the seal and the sea lion. In a narration inspired by the Lewis Carroll verse, "The Walrus and the Carpenter," actor Cyril Ritchard could be heard addressing a pinniped, "I would like to talk to you, about how you live, where you live and the things you like to do."

The Museum once again made clear its opposition to the unlimited killing of members of that other great family of sea mammals,



Child examining fossils in the newly opened Discovery Room, where the curious may keep their hands on and not off the exhibits.

the cetaceans, to which belong the porpoises, dolphins, and whales. In May and June it was host to an exhibition organized by Project Jonah's International Children's Campaign to Save the Whales. Drawings by elementary school children from the District of Columbia and its suburbs protesting the killing of whales were hung side-by-side with works by young artists from other cities in America and foreign countries.

Two other colorful and notable exhibits in the Museum's foyer area were the offshoot of the field research trips of two of the Museum's scientists. One was a display of large, dye-transfer color prints of tropical blossoms photographed in Africa and South America by Dr. Edward S. Ayensu, Chairman of the Museum's Department of Botany (supplemented with pictures by the Museum's scientific photographer, Kjell B. Sandved), the other placed on view ethnological materials from the eastern Himalayan country of Bhutan, collected by Dr. Eugene I. Knez, the Museum's Curator of Asian Anthropology. This exhibit was planned to coincide with the June coronation of Bhutan's 19-year-old king, and included the display of photographs, paintings, textiles, costumes, copper, gold and silver vessels, religious objects, basketry, and pottery. Among

the lenders to the exhibit was Smithsonian Secretary S. Dillon Ripley, who has made several expeditions to Bhutan.

Two Museum physical anthropologists, Drs. J. Lawrence Angel and Douglas H. Ubelaker, in separate paleodemographic studies in the Old and New Worlds, are amassing evidence of how environmental conditions influenced the health, longevity, and evolution of prehistoric man.

Working closely with archeologists who have unearthed grave sites, the two scientists make measurements of ancient skeletal material. From this they can assemble a body of statistics about an ancient community that includes the size of its population, the age composition, birth rate, sex ratio, number of children born, family size, and critical effects of diseases such as arthritis and malaria — all of which are determined by diet, climate, living habits, and heredity.

Dr. Angel's work over the last decade has been concentrated on Eastern Mediterranean burial sites such as Çatal Hüyük, Turkey, where a population of early neolithic hunting farmers and traders, living in a compact pueblo-like community, had conquered the peril of a high child mortality rate — probably caused by malaria — by evolving a culture that venerated and protected women. This had lengthened the lives and childbearing years of the women. The population of the community had increased as a result, and it had become possible for the women to make a rich contribution to the community's art, crafts, and religious activities, while the men were hunting and trading.

*The People of Lerna: An Analysis of a Prehistoric Aegean Population*, published by the Smithsonian Institution Press, is Dr. Angel's study of a site situated on the Bay of Argos, Greece, where archeologists found 235 Bronze Age graves, covering a span of 25 generations (2000-1600 B.C.).

The demographic profile Dr. Angel constructed showed that adults in Lerna (which he estimated had about 800 persons living in it during the Middle Bronze Age) had an average life expectancy of 34 years — 37 for men, 31 for women. The average woman bore about five children — 2.2 of which grew to adulthood (15 years of age). On the basis of that birth rate the population was increasing, doubling every 7 to 10 generations. This was a remarkably successful adaptation to the handicapping diseases afflicting the community.





Mask from the exhibition "Bhutan: The Land of Dragons."

Malaria, in particular, had a crippling impact, just as it had had at Çatal Hüyük. The changeover from a hunting to a farming culture, which had begun in the Mediterranean between 9000 to 6500 B.C. with the disappearance of the big game herds, had drawn early farming populations to sites like Lerna where the soil was soft and the forests not established. But these well-watered marshy areas that favored farming also favored the *Anopheles* mosquito and the result was that malaria, especially the type known as *falciparum* malaria, was rampant. The physical debilitation caused by this disease

plagued and weakened Lerna for most of its prehistoric period (the average stature of the Lerna men was only 5' 5½" and women, 5' ¼"). It was not until later when Greek communities learned how to drain their marshes to gain better control of irrigation and water supply that the numbers of malaria-carrying mosquitos were reduced, a development reflected in the stature and longevity of the people.

Dr. Angel's colleague, Douglas Ubelaker, has been analyzing skeletal material from a large pre-Columbian cemetery in the Hacienda Ayalan, Guayas Province, on the south coast of Ecuador, dating to A.D. 1300, where 50 large ceramic urns, each containing up to 20 skeletons, were uncovered.

With the approval of the Ecuadorian Government all of this material was shipped back to the Museum, where now, highly accurate microscopic methods of determining age by osteon counts were conducted. The results were startling. The population had an average adult age at death of about 67 years, with many individuals living into the eighth and ninth decade, a much higher figure than one would expect for a prehistoric population.

It can be explained by the fact the site provided excellent nutrition. The people took crops from the land and exploited fresh- and salt-water food resources. Many of the diseases that historically lower life expectancy (syphilis, malaria, measles, mumps, smallpox) either were nonexistent or were not severe problems until the Spanish arrived. Furthermore, there is some evidence of remarkable contemporary longevity along that part of the coast that may have extended back into prehistory.

Stands of Japanese Ma-dake timber bamboo (*Phyllostachys bambusoides*) are flowering throughout America, a cyclical phenomenon that takes place only at intervals of 120 years and is as rare to botanists as Halley's comet is to astronomers. Drs. Thomas R. Soderstrom and C. E. Calderón, Museum scientists, have been monitoring this dramatic botanical event. Last year they asked for help from readers of *Smithsonian* magazine and the Smithsonian's Environmental Alert Network, which alerted high school science classes all over the country. Hundreds of persons, young and old, responded by mailing in dried specimens of flowering branches of the bamboo plant and along with it information about precisely where it was collected and photographs and short histories of the



Dr. Thomas R. Soderstrom, Curator of Grasses, Department of Botany, examining specimens of flowering bamboo.

stands from which it came. With these data, Drs. Soderstrom and Calderón were able to draw up a map that pinpoints Ma-dake stands in at least 22 states, showing its heaviest concentrations on the West Coast, from Washington to California, and in the southeastern Gulf states.



The flowering of Ma-dake is always followed by the death of the plant's culms (stems), and this was verified by the volunteer observers. In cases where the flowering and death cycle had taken place in the late 1960s, they noticed that the old rhizomes (underground stem masses) were regenerating themselves and producing many new but weak, contorted shoots. Drs. Soderstrom and Calderón point out that it may take 6 or more years before large, normal shoots are again grown, and perhaps 15 years before the bamboo clump is in the same condition prior to flowering. In Japan Ma-dake is used as a raw material for the construction of homes, furniture, farm implements, baskets, and even food, and it is easy to understand why the cyclical flowering there is considered nothing less than a disaster.

All of the Ma-dake stands do not flower simultaneously because there are a number of time-oriented, hereditary lines, consisting of segregated progeny, distributed throughout the world. Each of these hereditary lines is on a 120-year cycle. These cycles began to come to completion in the late 1950s, but most of them in America have done so in the late 1960s. Drs. Soderstrom and Calderón predict that the present flowering will end shortly, but will begin again in the 2070s, continue through the 2080s, and terminate in the 2090s.

The covered jars in Dr. Donald R. Davis's laboratory are full of blotched and discolored leaves on which one can see curious lines. Some of the lines are crooked, some are coiled in a serpentine manner, and others strike out in every direction from a central patch, creating a star-shaped pattern. The leaves were collected by Dr. Davis from the Great Dismal Swamp in Virginia, but they could just as well be from almost any garden, park, or forest in America. The marks on the leaves are the work of leaf miners, insect larvae of minute size that can infest every leaf of a plant or tree and do enough aggregate damage to kill their host. In Canada, the miners have been so destructive to spruce and fir trees in the Western Provinces in the last few years that the Government has initiated a biological study of these insects in hopes of finding a means of control.

Last year, Dr. Davis, Curator at the Museum's Department of Entomology, began work on a biosystematic study directed specifically at four important families of leaf-mining Microlepidoptera (Eriocraniidae, Nepticulidae, Heliozelidae, and Gracillariidea).



Dr. Donald R. Davis, Curator of Lepidoptera, Department of Entomology, examining leaves with tell-tale markings left by leaf miners.



Mining behavior of almost every description, ranging from the most highly specialized to some of the most primitive forms, is practiced within these four groups.

One of the things Dr. Davis wants to do through his study of these families is to trace the evolutionary history of mining. Recently, Dr. Leo J. Hickey, a Museum paleobotanist, found a Nepticulid leaf mine on a lower Cretaceous Angiosperm leaf, a discovery that extends this basic ecological association between plants and insects back nearly 110 million years. Dr. Davis is now examining the Smithsonian-U.S. Geological Survey collection of Cretaceous and early Tertiary Angiosperms for further evidence of early Lepidoptera leaf-mining injury.

The mined leaves that Dr. Davis collects on trips to habitats like the Great Dismal Swamp and the Great Smoky Mountains are brought back to his Museum laboratory so that the miner larvae can be reared, identified, and closely observed. Dr. Davis plans studies of all phases of their life cycle, including oviposition, larval development, mine morphology, pupation, and adult behavior. He is also interested in correlating the systematics and behavior of the moths with that of their plant hosts. Why does a particular species of miner often only feed on a particular species of plant?

But before such intriguing biological questions can be seriously studied, basic taxonomic revisions must be prepared. Much of the classification of the four families was done in the nineteenth century, an age when moth investigators described the color and venation of wings — but little else. The skeleton, which is now recognized as the best part of the insect on which to base a taxonomic diagnosis, was often ignored. Dr. Davis has had to start out by eliminating the confusion this has created. He is now assembling comprehensive illustrated texts to facilitate rapid, accurate identification for the approximately 365 presently recognized North American species and the more than 100 new species that have come to light in his studies.

What will happen if the sea-level canal the U.S. Government has proposed constructing sometime in the future across the Isthmus of Panama mixes the animal and plant groups of the Atlantic and Pacific sides? Scientists say that serious ecological disruptions could follow. Dr. Meredith L. Jones, Curator of Worms in the Museum's Department of Invertebrate Zoology, saw several years ago that the lack of fundamental knowledge about the communities of marine



animals that live in the shallow waters on both sides of the isthmus would make it extremely difficult to assess the nature of these disruptions after they occur. Well-documented collections were needed to provide a benchmark for future investigations. To assemble these, Dr. Jones organized the Museum's Panama Biota Program.

The original qualitative collecting method involved hand-picking the organisms from the surface of a sieve that had been used to process an undetermined amount of sediment. Dr. Jones and his colleagues devised a quantitative method that they are now using to get true samples of the density and diversity of invertebrate organisms living in Panama's coastal waters. Collections are made while the tide is still high. Standing in water that is anywhere from ankle to waist deep, the scientists drive a cubical stainless steel jacket, that has an area of  $1/20$  of a square meter, 8 inches down into the mud. Then they slide a shovel under the jacket, draw it out of the bottom, sieve the sample, and bottle all of the residue. In typical samples taken the new way, the yields comprised an average of about 1800 specimens per square meter on a clean sand beach on the Atlantic coast, about 6400 specimens per square meter on a muddy sand beach on the Pacific, and about 46,000 specimens per square meter in an Atlantic turtle-grass bed.

Five samples are usually taken at each collection station in order to insure that contrasting microenvironments within a habitat are represented. An effort has also been made to take samples at each station at every season of the year.

At the Museum, a technician-student has been making quantitative counts of invertebrate life forms in each sample, classifying the animals by families. There is such an abundance of life in each sample that processing it takes the technician six full days of work. When Dr. Jones examines the worms in a sample to identify them at a species level, six more days of work are involved. He estimates that it will take him three to four years to get through all of the samples that have been collected.

If a sea-level canal should be constructed, Dr. Jones is satisfied that now scientists will be able to go back to the same site, make new collections, and then make comparisons that will show them what is happening, and enable them to predict what will happen next and if it will be beneficial or harmful. If the sea-level canal is never constructed, Dr. Jones believes the Program is still well worthwhile.

It is accumulating collections of unique value in an area of tremendous biological interest.

The present Panama Canal with freshwater lakes situated midway along its length has proved a highly effective barrier to the passage of marine life from one side of Central America to the other. So a scientist's curiosity is aroused when a marine fish native to the Pacific shows up in the Caribbean. Dr. Victor G. Springer, Curator of Fishes in the Museum's Department of Vertebrate Zoology, recently looked into the matter of a tropical Indo-West Pacific blennioid fish population living off Trinidad and the Atlantic entrance to the Canal. Was it a relic population that was once distributed throughout the world's tropic waters or had it been artificially introduced, conceivably through the Canal?

The facts argued against its being a relic population. Members of the blennioid family speciate rapidly and no blennioid species is found in both the eastern Pacific and western Atlantic Oceans, which were last connected 2 to 4 million years ago. If the fish had once been widely distributed in the tropics, its Indo-West Pacific and Caribbean populations would have evolved into different species since the rise of the isthmus. Dr. Springer concluded that it must have been artificially introduced into the western Atlantic, probably by the discharge of ballast or bilge waters of ships. The fish is small and found in abundance around docks where it can easily be sucked into a ship's ballast tanks. Other small marine fish have been picked up in this way, taken thousands of miles, released when the ship discharged its bilge waters, and established breeding populations. But this is the only instance of a fish being introduced in this way into the Caribbean.

Did the ships that brought the fish to the Caribbean enter through the Canal? Dr. Springer thinks not. Ships coming across the Pacific discharge their bilge-ballast water before they enter the Canal; that being the case, the fish should be established on the Pacific side of the Canal. But it has never been found there or anywhere else in the eastern Pacific, but it does occur at the Atlantic entrance to the Canal. Trinidad is where the fish has its principal Caribbean population and where it was first collected in the Atlantic in 1930. Dr. Springer believes that instead of coming across the Pacific, the fish arrived in Trinidad from the Indo-West Pacific via the Atlantic before the Canal was first opened in 1914.





Dr. Meredith L. Jones, Curator of Worms in the Department of Invertebrate Zoology, examining specimens in a sieve.



*Omobranchus punctatus*, subject of study by Dr. Victor G. Springer, Curator of Fishes in the Department of Vertebrate Zoology.



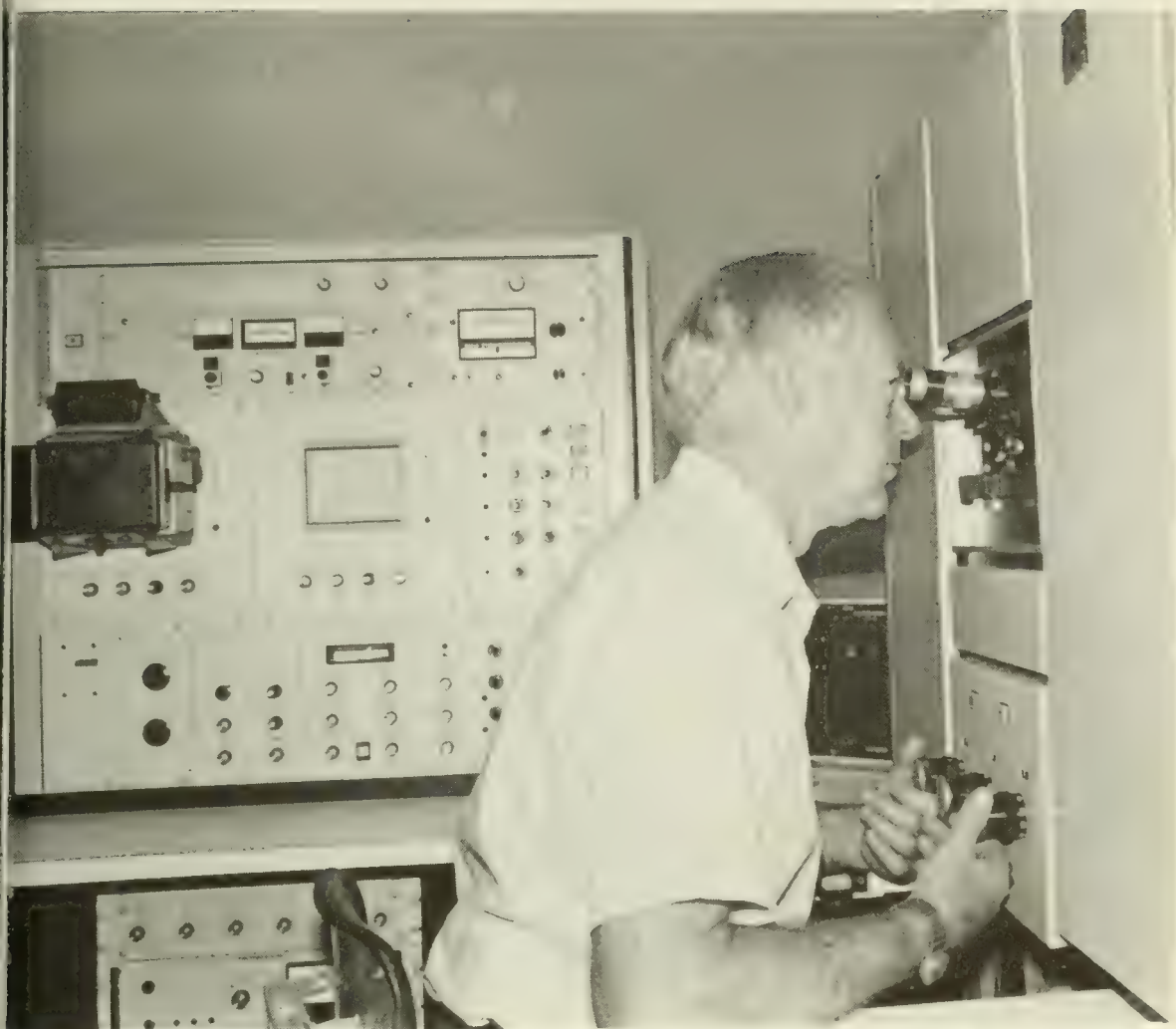
The trail led Dr. Springer to the East Indian coolie trade that flourished between Calcutta and Madras, on the east coast of India, and the West Indies islands in the years from 1838 to 1914 and 1917. In that period, thousands of coolies arrived on ships that traveled from India to the Caribbean around southern Africa. It is Dr. Springer's view that the coolie trade vessels were the vehicles that introduced *Omobranchus punctatus* into the western Atlantic.

Garnet can be yellow, orange, red, lilac or purple, depending on its chemical composition and upon the temperature and pressure conditions under which it formed in the earth. It has long been known by scientists that this colorful mineral occurs in varying quantities in kimberlite pipes, the bodies of igneous rock that are the primary source of diamonds. But the fact that there was a high or low concentration of garnet in a pipe did not seem to indicate one way or the other if there was an abundance or dearth of diamonds present. Last year, however, Dr. George S. Switzer, Curator of Mineralogy in the Museum's Department of Mineral Science, discovered that certain lilac-colored garnets have special compositional characteristics that make it possible to say that if they are present in a pipe, it is a diagnostic indication that diamonds are likely to be found there in economic quantities.

These garnets are formed — as diamonds are — in the earth's upper mantle at a depth of 100-150 miles. When molten kimberlite forces its way to the surface at velocities estimated to be on the order of 300-400 feet per second, it sometimes brings both of these minerals up with it from the earth's interior. The garnet is found in the pipes in rocks called xenoliths (eclogites and periodites) and sometimes in diamonds as minute inclusions. Because of its occurrence in diamonds, all of the garnet was thought by some scientists to have crystallized (reached equilibrium) at the same time, place, and temperature as the diamonds. Another school of thought, however, held that the garnets in kimberlite xenoliths crystallized at lower temperatures than garnet inside the diamond.

These two opposing views were tested by Dr. Switzer in a detailed study of the garnet in the Finsch kimberlite pipe, one of the richest diamond mines in South Africa. Finsch is also rich in garnet. It makes up 90 percent of the mineral concentrate recovered there during the diamond extraction process.

Dr. Switzer brought back to the Museum a handful of garnet



Dr. George S. Switzer, Curator of Mineralogy, Department of Mineral Science, using the electron microprobe.

grains of all colors that had been recovered at Finsch in the extraction process. He sorted 300 of these on the basis of color into eight categories and analyzed them on the Department's electron microprobe, which can identify and quantify the elements within each grain.

The results showed that some of the grains of lilac-colored garnets — magnesium rich and calcium poor — had a chromium content that placed them within the compositional field of the garnets previously only reported as inclusions in diamonds. Dr. Switzer, who is now testing garnets from other kimberlite pipes, believes that the presence of lilac-colored diamond of this special composition is diagnostic of the presence of diamond in a pipe, but it is not known yet if there is any quantitative relationship.



Dr. Daniel J. Stanley is holding a sediment core from the Mediterranean.

Dr. Daniel J. Stanley, Geological Oceanographer and Curator in the Museum's Department of Paleobiology, is helping piece together a detailed knowledge of the physical processes that shape the Mediterranean region, a project that often finds him out on an oceanographic vessel taking sediment cores from the Mediterranean Sea bed. The recent development of deep-sea drilling technology as well as submersibles — deep-sea cameras, underwater television, and very high resolution seismic profilers — have made it possible for





View toward the north from the summit of the Rock of Gibraltar showing the powerful nearshore currents flowing parallel to the coast in the westernmost Mediterranean Sea. The concrete revetment in the foreground is a rain-water catchment structure. *Below:* Wind is a significant agent for transporting sediment to sea in the Mediterranean Sea. The photograph taken in April 1973 near Pointe des Pêcheurs on the northern coast of Morocco shows silt- and sand-size material being blown out to sea by a powerful Sirocco wind.



him and other scientists to carry out revolutionary studies that make it apparent that the configuration of the Mediterranean Sea, as we know it today, is a geologically recent phenomenon.

This emerging picture of geologic change includes Dr. Stanley's discovery of sedimentological evidence for the existence of a large emerged land mass present in the area now occupied by the Ligurian Sea (between the Riviera and Corsica, in the western Mediterranean) until early Tertiary time. Seismic studies of the present Ligurian Sea floor, and examination of exposed sediments found in the French Maritime Alps, Corsica, and the northwestern Apennines of Italy, confirm that this land mass foundered and became submerged after the Oligocene.

Finding specimens of exposed ancient sedimentary deposits — now uplifted to 10,000 feet above sea level in the mountain chains that surround the Mediterranean — is one part of Dr. Stanley's work that does not require advanced technology. For this, Dr. Stanley depends upon his keen geologist's eye and his skill as a mountain climber.

The publication in 1973 of the 765-page bilingual volume *The Mediterranean Sea: A Natural Sedimentation Laboratory*, edited by Dr. Stanley and Drs. Gilbert Kelling and Yehezkiel Weiler, was the result of Dr. Stanley's determination to achieve a needed multidisciplinary and multinational synthesis of current research in sedimentation and related fields in the Mediterranean and circum-Mediterranean. The book has contributions by 85 specialists from 15 countries, all of whom participated in a symposium organized by Dr. Stanley in 1971 at the VIII International Sedimentological Congress in Heidelberg.

The book includes an outline of criteria for a needed international effort to find out what happens to pollutants when they are introduced into the Mediterranean, where they go, and what their consequences are. It calls for the construction of monitoring stations to detect and map sediment and pollutant dispersal and deposition; aerial flights and space-satellite photography to monitor the discharge of sediments from river mouths, and rates of serious erosion along selected coastlines (such as the Nile Delta area affected by the Aswan Dam); and, finally, more deep-sea drilling to resolve additional questions of the Mediterranean's geological and stratigraphic background.



## *National Zoological Park*

The National Zoological Park is accelerating its change from cages for containment of species to open arenas for awareness of the relationship of all living things; from a consumer of animals out of the wild into a conservator and producer of animals and into a major zoological resource of animal knowledge that can be disseminated around the world.

In fiscal year 1974, the Zoo advanced efforts to establish new standards of excellence and responsibility in all areas of zoological park programs with concurrent courses of action:

Rebuilding yesterday's zoo for tomorrow's purpose.

Marshalling the most creative contributions of all staff members.

Launching necessary programs in off-site breeding and research.

Studying the relationships of animals to one another, to place and to time — and in time for survival.

Coordinating resources in forms that will reach people of all ages and walks of life.



Parent and four young barn owls which were hatched in the tower of the Smithsonian Castle. (Photograph by M. J. Johnson, NZP)



## RESEARCH AND CONSERVATION CENTER

Perhaps the Zoo's most notable achievement since its founding in 1890 was receiving, in January 1974, a permit for 3200 acres of land in Front Royal, Virginia, that formerly served successively as a United States Army Remount Depot for horse breeding, and the United States Department of Agriculture as a Beef Cattle Experiment Station.

The acquisition of this propagation and research facility — to be known as the National Zoological Park's Research and Conservation Center — will mark the end of the long search for a country facility which could be used to breed and maintain animal herds in sufficient numbers to insure their continuation as a viable, social, and genetic group. The educational mission of the National Zoological Park located in the valley of Rock Creek in Washington precludes the use of vast amounts of land for a single species so that it is not able to maintain ongoing herds of animals with proper age-pyramid and genetic mixture. Considering the worldwide shrinking of land areas available to wild animals, the increased hazards of disease, poaching, and land degradation by humans, the plight of many animals is indeed precarious. It is hoped that by establishing herds of threatened and endangered species at the Research and Conservation Center, in some cases through collaboration with other zoos in the United States, the Zoo will have a steady and reliable source of animals as well as a source for continuing zoological research on behalf of these species.

The development of the Research and Conservation Center will be deliberately paced, and future reports will carry information concerning its advancement. This year the Zoo was able to enclose 80 acres of rolling pasture for the first two resident groups of animals — Scimitar-horned Oryx and Pere David's Deer.

The Front Royal Center will be an extension of the Rock Creek Park facility with major input in the first few years from the Offices of Animal Management, Animal Health, Zoological Research, Construction Management, and Facilities Management. Public information efforts at the Center focus now on the animal's needs for isolation and space. Low-key programs in conservation, education, and natural viewing will be planned for coexistence with the principal mission in future years. When we speak of the National Zoological



Aerial view of research and breeding farm at Front Royal, Virginia, recently acquired by the Zoo.



Park, we are now referring to 3400 acres in two locations but with one purpose, one management, and one organization.

#### ANIMAL AFFAIRS

The most interesting and exciting animal event was the birth of an Indian Rhinoceros in January, marking the first successful breeding of this endangered species in the Western Hemisphere. This achievement was the result of almost two years of concerted and integrated efforts by the scientific research staff, curators, keepers, and even volunteers who remained in the Zoo after hours to monitor the male's and female's activities during mating and later at birth. Therefore, the Zoo not only gained a 127-pound male (named Patrick in honor



Patrick, Indian rhinoceros, *Rhinoceros unicornis*, born to Rajkumari and Tarun on January 30, 1974. Patrick is the first live Indian rhinoceros born in captivity in the United States.



of Daniel Patrick Moynihan, our United States Ambassador to India), but also a wealth of valuable data on courtship, mating, and parturition behavior. At six months of age, we estimate Patrick's weight to be about 350 pounds; however, he is too rambunctious to get onto the scales.

Among the antelope, the most outstanding birth was that of a lovely female calf to Kanitia, the imported Bongo; and the hope of a second-generation birth on her mother's side to Nyandarua, Kanitia's offspring of two years ago. Nyandarua was the first Bongo bred and born in captivity in the world.

The lesser pandas gave birth to their second pair of kits on the next to last day of the fiscal year so were not mentioned in last year's report, and as if to catch us again, their pair from the year before provided the Zoo with young on the night of June 30, 1974.

The white-cheeked gibbon family produced a fine offspring to the delight of the staff and the visitors; and for the first time at the National Zoological Park, the binturongs produced young, which are being closely studied both for their growth and development as well as their behavioral relationship with the mother. The golden marmoset program continues to go well in terms of understanding the tie-in of behavior and reproduction. The Zoo now has 20 animals with birth this year of a first set of second-generation offspring as well as a set of twins from a wild-caught pair.

Ling-Ling and Hsing-Hsing, the giant pandas, continue to thrive and hold the interest of the visiting public, behaving in their new yards rather like children released from school because of snow — rolling, somersaulting, playfully demolishing snowmen made for the occasion by the keepers. They are still unquestionably the most popular animals at the Zoo. Ling-Ling, the female, now weighs 250 pounds and Hsing-Hsing, the male, weighs 264 pounds. Studies on their behavior, vocalization, social relationships, and general habits are continuing with the assistance of volunteers from the Friends of the National Zoo to the scientific research staff and to the keeper and curatorial personnel. This April, Ling-Ling came into estrus, and we all had high hopes that there would be a breeding, particularly with the promising experiences of last year. However, although the animals got along well with the normal amount of premating, roughhouse play, vocalizations, and general juvenile nonsense, there was no actual breeding. No doubt this has been a further learning

experience for the male, but it appeared to be a frustrating experience for the female. There are hopes for a breeding in the fall season, but if not then perhaps next spring when they are both older and wiser from their two encounters.

Despite the move of the white tigers (Mohini and Rewati) to Chicago's Brookfield Zoo and the white-gene carrying Ramana and Kesari to the Cincinnati Zoo to allow replacement of the old Lion House, the latter pair added a new chapter to the breeding program by producing four cubs, three of which are white. A normal-colored male, along with a white male were taken from the mother for hand-rearing and are doing well under the expert care of the Cincinnati staff, and the same can be said for the two, unsexed animals who remain with their mother, Kesari. Unfortunately, the sire Ramana passed away the week before with a chronic kidney condition, which is so often seen in the big cats between 10 or 12 years of age. These four new cubs give great hope for continuing the line of white tigers and should be a stellar attraction when the "Dr. William M. Mann Lion and Tiger Exhibit" is completed, hopefully in early 1976.

Among the outstanding bird hatchings can be counted the continuation of the Bornean Great Argus Pheasant breeding program with the successful raising of 12 of these young birds. Rivaling the success of this program was the raising of three Nene Geese for the first time in the history of the Zoo. Other outstanding hatchings include three Stanley's Cranes, ten Rheas, and three American Mergansers.

Among the reptiles, the most notable breeding was of the Burmese pythons in which three clutches were laid and 45 young snakes were hatched. This program was of great scientific interest as incubation of the eggs was carried out both artificially and naturally. In the latter case the females coiled around the egg masses, maintaining the proper body heat by rhythmic muscle twitchings. This process was of great interest to the visitors and particularly so since electrical sensors were connected to recording thermometers to trace temperature fluctuations.

The breeding program at the National Zoological Park is progressing quite well, space permitting, and the efforts of the scientific research department's behavioral studies, the contributions from the animal health department on nutrition, preventive medicine, as well as the diligent endeavors of the animal management department are





Burmese pythons, *Python molurus bivittatus*, incubating their clutches of eggs. The probes under the pythons are attached to a telethermometer in order to determine the body heat. Of the total of 71 eggs laid, 20 hatched.



beginning to pay off. At the present time, 66 percent of all mammals exhibited at the Zoo are captive born either here or at other zoos. Approximately 30 percent of the mammals species, 14 percent of the bird species, 8 percent of the reptile and amphibian species in the collection are breeding. This is a slight but significant increase over previous years.

While it is pleasant to report on significant births, note must also be taken of deaths, and four famous old-timers at the Zoo have passed on. Pokodiak, a female hybrid bear (Alaskan Brown  $\times$  Polar Bear), born in 1936, died in April at the age of 38 years. She is the last of the National Zoological Park's famous hybrid bears which had such an eminently popular appeal due to their great size and unusual family background. Biggy, the 14-foot saltwater crocodile, one of the largest crocodilians in captivity, died this March after 42 years on exhibition. He was a spectacular animal and well beloved by his visitors. The Silver-crested Cockatoo, Richard, originally known as Jacob, died in February. This bird was brought back from Sumatra as a mature bird by Dr. Mann with the 1937 National Geographic/Smithsonian Institution Expedition. He had been for many years in the home of a Dutch plantation owner and spoke a smattering of Dutch and Indonesian. He was a great delight to the visitors, being an excellent talker. He soon learned English, and one of his favorite phrases, "open the door, Richard," gradually brought about his change in name by which in later years he was known. This bird was thoroughly imprinted on human beings and would have nothing to do with his feathered kin, preferring the company of humans; for this reason since 1965 he was exhibited in the Elephant House to the delight of thousands of children if not to the delight of the hippopotamuses, his nearest neighbors. His maniacal laughter, joyous whistling, and general rowdiness will be missed. He has been replaced by an Amazon parrot, who was given to the Zoo as a pet similarly imprinted.

#### ANIMAL HEALTH AND PATHOLOGY

The animal health programs have continued with ongoing investigative research. With the addition of an assistant veterinarian, the program has been greatly accelerated, including initiation of a training course for Animal Keepers to expand their ability to recognize deviation from healthful behavior and habits which may signify the



One of seven smooth-fronted caiman, *Paleosuchus trigonatus*, imported from the Amazon Basin for a breeding program as well as adding a new species to the collections.

existence of potential health problems. The death rate has lessened slightly and significant improvements are anticipated in the future.

Investigations into collection-based health problems were multiplied to include:

1. A study of avian orthopedics because existing fracture repair techniques fall short of preventing shattering in weakened bones. The techniques currently being tested consist of multiple pins and external fracture fixation.

2. A study of avian hematology to increase knowledge of the sources of avian diseases, a field heretofore not well studied even though species of birds represent the largest proportion of our collection. Diagnostic techniques involving use of blood serum constituents have been virtually unknown in birds. The study thus far indicates that white blood cell level might be an effective indicator of infectious diseases which respond to antibiotic treatment. A paper has been prepared and submitted for publication.

3. A Tiger Virus Disease study has been started to isolate the viral agent believed, as a result of tissue alterations identified through light microscopy, to be the possible cause of white tiger cubs' deaths earlier in the year.

Studies continued into avian tuberculosis, selenium-vitamin E deficiency, chromosome studies for taxonomic designation, sable blood, reindeer metabolism, and the important area of establishing normal blood values for exotic species. The office has cooperated in the development of capture equipment and participated in field trials of newly developed immobilizing agents.

This unit has established a series of seminars for veterinarians on the East Coast that are involved in exotic-animal medicine, and this long-felt need for the improvement of exotic-animal medicine has been well received by the participants.

#### ZOOLOGICAL RESEARCH

The Office of Zoological Research, under Dr. John Eisenberg, achieved notable progress on 24 projects in field mammalian ecology, reproduction, behavioral analysis, and nutritional analysis. As one arbitrary measure of success, 28 original contributions were published in the department's six years of history to 1972, and 43 titles, with 9 more now in press, since then. Nine graduate students and two postdoctoral students from six universities were guided and supported in 1974.

Field efforts in the neotropics by Dr. G. C. Montgomery illuminated the importance of the significant biomass contributions of the three-toed sloth and of the lesser anteater, as well as to improving chances for their eventual captive acclimatization. Other studies integrated with the National Museum of Natural History and the Smithsonian Tropical Research Institute advanced with respect to a host of rodent and primate species.

Methods for scoring the behavior of female mammals as they pass through estrus were developed by Dr. Devra Kleiman. Behavioral changes associated with estrus in the tigress were published for the first time. The role of olfaction as a mediator of reproductive behavior in the binturong was published. The propagation of the golden marmoset in the second generation was accomplished by Dr. Kleiman and associated staff. The analysis of reproductive behavior of the lesser panda and factors contributing to reproductive success in



the giant panda were described. The reproductive behavior and cycling in the Indian rhinoceros was worked out by Dr. H. K. Buechner and associates. Dr. Buechner also initiated a long-term study on the determination of estrus and sexual behavior in the sable antelope.

Studies on reproduction in caviomorph rodents have proceeded in the Zoo collection resulting in the first establishment of captive colonies of two — *Octodontomys gliroides* and *Pediolagus salincola* — and the Zoo being in position to rear successfully two more. The breeding of *Carollia perspicillata*, a species of fruit bat, was a milestone study in the effective management of Chiropterans.

Recognizing the importance of olfaction and the role of olfactory signals in the priming and triggering of sexual behavior, several rodent species have been explored by Dr. Michael Murphy, including wild stocks of the golden hamster and three genera of caviomorph rodents.

Aspects of animal communication, the genesis of social bonds, and the structure of mammalian societies have been under intensive investigation with self-evident applications to animal management. For example, efforts in 1974 show that the success of second-generation breeding in the golden marmoset hinges upon an understanding of the formation of social bonds and the role of early experience in the participation of rearing young. Through analysis, such as are currently being carried on in the Zoo and in parallel in the field, an understanding and interpretation of communication in, for example, the spider monkey now becomes possible.

Dr. Eisenberg and his associates were deeply involved guiding the success of the Thirteenth International Congress of Ethology held in August with George Washington University and the Smithsonian Institution being the co-hosts. Scientists from many different nations attended, resulting in an exciting exchange of stimulating scientific information.

### CONSTRUCTION

As mentioned previously the old Lion House has been demolished and the new exhibit will begin construction early in July. The character of "lion house hill" is changing and for the definite advantage of the big cats and their visiting public. The old Monkey House is being renovated at this time and should be completed early in the next calendar year. This house, built in 1904, will be modernized

to have 12 glass-fronted, larger inside exhibit cages and the corresponding number of outside cages. The selection of monkeys will be fewer than were exhibited before, but they will be in larger family groups. The old, small-cat house generally referred to as the "puma house" has been removed and plans are being prepared for its replacement by a series of free standing corn-crib-type cages to house the lesser cats, such as pumas, lynx, and servals. The dog line below the sea lion pool has also been removed with anticipated replacement next year by fewer but larger compounds.

Plans are proceeding for the renovation of the outside Elephant House yards as well as of the outside cages around the Bird House. New cheetah facilities are being presently constructed just north of the sea lion pool. This will consist of spacious double enclosures that will give the cheetahs a much larger area in which to run. This will also allow separation of the males and females and it is hoped will enable the establishment of a breeding program for these lovely cats. In this vein the Zoo has secured, on breeding loan, a pair of cheetahs from the Baltimore Zoo and a second pair from the Cheyenne Mountain Zoo in Colorado Springs. Based on recent success of cheetah breedings at the San Diego Zoo and Lion Country Safari, it is hoped that a rotating encounter program can be established between the males and the females which will result in successful breedings.

#### *VISITOR SERVICES*

In 1974, an effort was launched to bring progress in graphics, exhibits, education, and information up to the pace now being set by the Zoo's sound and progressive programs in animal management, animal health, and zoological research. The Visitor Services Group, led by an assistant director, assembled the Office of Graphics and Exhibits, Education and Information, and the Protective Services with the mission of providing the Zoo visitor good guidance and opportunities for quality educational experiences, and a high degree of public service and accommodation. This effort coordinates with the Friends of the National Zoo as they continue to carry the Zoo's educational programs to the visitors, to the local school systems, and surrounding community.

The information and education staffs are being increased, and exhibits came under the control of an experienced and creative de-

signer in order to bring the interpretive program up to highest standards. This person will also work closely with the designers, Wyman and Cannon, Inc., contracted with under a matching grant from the National Endowment for the Arts to develop a Master Graphics Plan and Design Manual for the Zoo.

Another important new service for both the employees and visitors was the appointment of a Health and Safety Officer, with increased emphasis on providing this vital area of visitor services.

Management efforts in general in fiscal 1974 focused on building up understanding and administrative capability at the level of the operating offices assembled into the Animal Programs Group, Visitor Services Group, and Central Services Group. Central management was reduced to a handful of people working to help guide the growth and progress of the ambitious and spirited Zoo staff.

### *Office of International and Environmental Programs*

The new Office was established on October 15, 1973, combining the Offices of International Activities and Environmental Sciences. It is designed to further increase opportunities for the Smithsonian to conduct research abroad through the application of its traditional strengths in collection-based natural history to ecosystem-oriented studies in the tropics. A new International Environmental Science Program, incorporating the former programs in Oceanography, Limnology, and Ecology, was initiated at the end of the fiscal year. The previous program categories are used below to describe studies conducted during 1973.

The Office also continues to provide support to United States research institutions, including the Smithsonian, through Foreign Currency Program grants, and service to other Smithsonian units through the Liaison Section of the International Activities Program.

The Center for Short-Lived Phenomena, an independent unit of the Office in Cambridge, Massachusetts, provides for the rapid communication of technical data on natural and environmental phenomena of short duration through a global network of scientific correspondents.

Wymberley Coerr, formerly Ambassador to Ecuador and Uruguay, was appointed to head the new Office.



A series of ecological assessment studies in foreign countries, administered by the Office and supported by the Agency for International Development, was completed during the year. The studies included an analysis of the effect of oil pollution on marine organisms in Indonesia, a review of the environmental consequences of rapid urbanization in a developing country (Seoul, Korea), and the ecological impact of Lake Volta in Ghana, the world's largest man-made lake. A 4-year study for the purpose of predicting the spread of waterborne diseases, particularly schistosomiasis, with the impoundment of the Mekong River and its tributaries, was completed.

#### *OCEANOGRAPHY AND LIMNOLOGY PROGRAM*

During their combined 15 years of operations the Smithsonian's two oceanographic sorting centers have processed bulk marine samples, monitored and assessed marine pollution, and conducted baseline and environmental prediction studies. In the past year, the centers have processed more than 8 million specimens for specialists and reference collections. Much of the material processed by the Oceanographic Sorting Center in Washington involved Arctic and Antarctic biological samples in cooperation with the NSF Office of Polar Programs. The biological and environmental data accompanying these samples have been computerized.

Over 3000 specimens at the Mediterranean Marine Sorting Center have become a part of the Reference Collections of Mediterranean Marine Biota. Sorted specimens are divided equally and deposited in the Smithsonian's National Museum of Natural History and the Institut National Scientifique et Technique d'Océanographie et de Pêche.

The Existing Conditions of the Biota of the Chesapeake Bay Project for the U.S. Army Corps of Engineers is providing information on the most important species of Chesapeake Bay, descriptions of community structure, and analyses of water quality criteria. An interim report was submitted in October, and the final report will be submitted during the fiscal year 1975. Coordination responsibilities of the report on the effects of Tropical Storm Agnes were also performed for the Corps.

The second year of a United States-Yugoslav aquatic study, entitled "Limnological Investigations of Lake Skadar," was successfully completed in cooperation with the Limnology Laboratory of

the Biological Institut of Titograd. Extensive progress was made in adequately equipping the laboratory and in sampling and analyzing the preliminary research results. Manuscripts are in progress and in press.

Development of comprehensive biological studies of marine and freshwater ecosystems in Egypt and Pakistan is proceeding. A post-impoundment ecological assessment of the Nam Ngum Reservoir in Laos was initiated in May 1974.

Liaison with other Smithsonian Institution aquatic sciences was continued, as was representation on various committees and councils concerned with oceanography and limnology.

#### ECOLOGY PROGRAM

An evaluation of environmental resources was undertaken in a study for the U.S. Army Corps of Engineers in connection with the Corps' responsibility for preserving natural, historical, and cultural aspects of America's natural heritage. The project involved a comprehensive review of current environmental inventories and literature on requirements for such inventories, a critique of pilot environmental reconnaissance inventories, and preparation of guidelines for agencies conducting statewide inventories of critical environmental areas. The guidebook deals with key issues and decisions that must be resolved in conducting the inventories and suggests methodology for delineating areas of critical environmental concern.

The Smithsonian Center for Natural Areas assists, through ecological studies, in planning and establishing priorities for the selection and preservation of ecologically significant areas. Natural areas include habitats of threatened species of plants, animals, and communities; important breeding and overwintering areas; sites of unique interest for research or education interests; and archeological and related locations that should be preserved. The Center has developed a quantitative evaluation technique of ecological indicators as a scientifically valid basis of assigning priorities for acquisition of permanent nature reserves by procuring agencies.

The Center published a 2-year, natural-areas study of the Chesapeake Bay region. The Nature Conservancy, co-sponsor of the study, intends to use the findings as one basis for procurement and designation as protected areas sites in the Chesapeake Bay watershed regarded as ecologically significant.

The Center prepared an inventory of ecologically representative sites within the Atlantic Coastal Region, together with descriptions and recommendations to assist the National Park Service in designating sites for its Registry of Natural Landmarks.

The Center is helping to assess the ecological consequences of activities at U.S. Air Force Bases in the continental United States in order to offer a scientific basis for suggesting improvements in conservation practices. A comprehensive survey was made for the Air Force of the existing data on the flora and fauna of Johnston Atoll in the Pacific, including both terrestrial and marine organisms. The baseline information was compiled for an evaluation required for an environmental impact statement for the islands.

The Center for Natural Areas, with approval of the Smithsonian, was incorporated as an independent organization during fiscal 1974. The Center's studies henceforth will be supported by grants and contracts from foundations, charitable trusts, federal, and state agencies.

The Smithsonian-Peace Corps Environmental Program provides assistance in two general areas. It develops Peace Corps projects and assignments dealing with environmental and natural resource problems in the developing countries and recruits and places applicants skilled in the environmental biological sciences. Over 700 applications were received in fiscal 1974, and 207 volunteers with environmental skills were assigned to 28 countries. The volunteers were requested directly by the host governments for assignment to scientific and natural conservation programs.

#### *INTERNATIONAL ACTIVITIES PROGRAM*

As a part of the new Office of International and Environmental Programs, the International Activities Program has undergone no substantive changes in its functions.

As its major responsibility, the International Activities Program administers the Smithsonian Foreign Currency Program. This Program awards grants to support the research interests of American institutions, including the Smithsonian, in those countries where the United States holds "excess" amounts of local currencies, derived largely from sales of surplus agricultural commodities under Public Law 480. Qualifying countries, where the Treasury Department deems United States holdings of these currencies to be in excess of



normal federal requirements, are presently India, Pakistan, Burma, Egypt, Tunisia, Guinea, and Poland. The Smithsonian received a fiscal 1974 appropriation of \$4.5 million in "excess" currencies for the support of grants in the disciplines of archeology and the anthropological sciences, systematics and environmental biology, astrophysics and the earth sciences, and museum-related fields. During its first decade of operation, the Foreign Currency Program has awarded more than \$24 million in foreign currency grants to more than 70 institutions in 32 states and the District of Columbia, involving some 220 museums, universities, and research institutions. Within the framework of the Program, the Smithsonian made arrangements in fiscal 1974 for the United States to contribute \$1 million in support of UNESCO efforts to save the submerged temples at Philae, Egypt. The Program participated in interagency negotiations leading to the establishment of a United States-Yugoslav Joint Board of Scientific and Technical Cooperation. This Board makes it possible to extend the period for which support will be available for already approved United States-Yugoslav cooperative research projects, including Smithsonian research in limnology and Smithsonian Foreign Currency-supported archeological research.

The International Liaison Section continues to provide other Smithsonian units with assistance in international matters involving travel and projects abroad. It coordinated the travel and research arrangements of the many foreign scholars visiting the Smithsonian, and it makes arrangements for other foreign visitors. A growing area of liaison responsibility is in special programs for foreign research cooperation. These include promoting Smithsonian scientific and scholarly cooperation with the People's Republic of China and under binational arrangements with Israel and Germany.

#### *CENTER FOR SHORT-LIVED PHENOMENA*

The Center operates a worldwide electronic alert system for rapid communication of scientific data on natural and environmental phenomena of short duration. During the year the Center reported 155 short-lived events that occurred in 44 countries, islands, and ocean areas. Scientific field teams investigated 120 of the events. The reporting network consists of about 2000 scientists, scientific research institutions, and field stations located in 138 countries throughout the globe.

Scientists and other subscribers to the Center's service receive information on significant changes in biological, ecological, and geophysical systems, including rare or unusual animal migrations, population increases, and mortalities, major floods, forest fires, and pollution events, such as oil and chemical spills, gas and radioactive substance leaks, volcanic eruptions, earthquakes, landslides, and occasional astrophysical events, such as meteorite falls and fireballs.

The Center has enlarged its International Environmental Alert Network to include more than 60,000 secondary school and university students in over 800 schools throughout the United States and Canada, Puerto Rico, Brazil, Belgium, Ireland, Italy, Rumania, Jordan, Lebanon, Ghana, Korea, Singapore, Tanzania, Sudan, Sri Lanka, South West Africa, England, Greece, Saudi Arabia, Cyprus, Zambia, France, The Netherlands, and Kenya.

Services under contract were provided to the United Nations Environment Program; the United Nations Educational, Scientific, and Cultural Organization; the United States National Aeronautic and Space Administration; and the United States Environmental Protection Agency.

### *Radiation Biology Laboratory*

The importance and significance of energy as the driving force of our technological society became abundantly clear in 1974 as political and economic forces displaced familiar use patterns. Thus, the laboratory's charter "to study the role of sunlight in maintaining life on the earth" anticipated current concerns by almost a half century. In fact, the purposes and objectives of the laboratory become increasingly important as the world's population grows, and its food needs and requirements for diminishing fossil-fuel resources expand.

During fiscal 1974 the laboratory emphasized several major areas of research on aspects of solar radiation that influence biological systems: (1) measuring the solar energy received at the earth's surface, its quantity, quality, and duration, since these parameters establish the starting point for all aspects of photobiology; (2) the biochemistry and biophysics of energy storage (photosynthesis) and the structures (pigments and membrane systems) involved in cap-

turing the sun's energy; (3) the regulation of the use of this stored energy by living organisms in response to complex signals of light, temperature, or gases in the environment; and (4) the use of the photosynthetic products to date the time when objects of biological origin were last alive and in equilibrium with the environment (carbon dating).

### SOLAR ENERGY

Measurements of solar energy were recorded from a monitoring network including four locations: Barrow, Alaska; Flamenco Island, Panama; the National Physical Laboratory in Jerusalem, Israel; and at Rockville, Maryland. This network covers the Northern Hemisphere reasonably well and records at three-minute intervals the energy received in six color bands, as well as the total energy from the ultraviolet short wavelength limit to the infrared (2.8 microns), where the energy per photon is no longer capable of driving photochemical reactions.

From this enormous volume of data have been extracted many useful pieces of information. For example, the area required for suitable collectors to provide the necessary energy to heat or to air condition buildings may be calculated or estimates of the upper limits for plant growth in an area may be computed.

In addition, some data implicate solar ultraviolet with skin cancer incidence. Particularly, as more and more supersonic transport aircraft are flown, it is postulated that the fuel exhausts will catalyze the breakdown of the protective ozone screen in the atmosphere, which limits the amount of ultraviolet penetrating to the earth's surface. In cooperation with the Air Resources Laboratories of NOAA, a scanning radiometer was stationed at Tallahassee, Florida. This instrument measures narrow bandwidths of ultraviolet in the erythema (region of sunlight that causes skin reddening) band and these data are being tested to see if a correlation exists between quality and quantity received and the incidence of skin cancer (as measured by the National Cancer Institute) in Tallahassee.

Another important factor in solar irradiance measurements is the primary standard to which all measurements are referred. The Smithsonian has a long history of developing standards, and this year a symposium was held for international authorities on solar instruments and measurements to discuss and evaluate the initiation





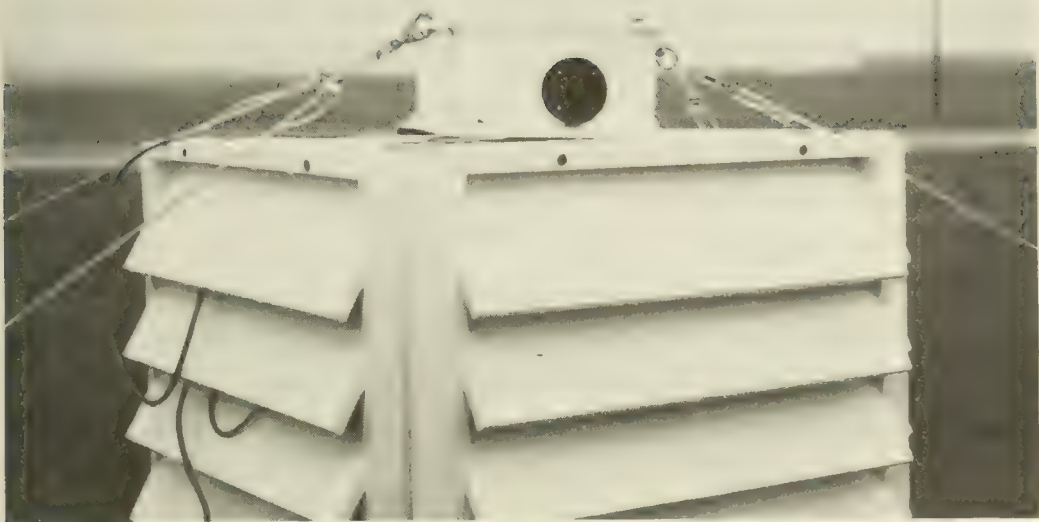
Spectral radiation monitoring by the Radiation Biology Laboratory at the Pacific entrance of the Panama Canal. The units shown are pyranometers mounted on the roof of the monitoring site.

and worldwide use of a uniform and precisely defined measuring scale. While there is, as yet, no consensus as to the best scale system, at least intercomparison may now be made in a more rational manner. The papers presented at this symposium will be published as a Smithsonian publication.

In order to pursue the importance of light on plant growth, four large growth chambers were installed in which the major parameters regulating plant growth can be controlled. These include the nutrient and root media, the atmospheric media and the light environment. Plants are grown on soil or artificial substrate systems (nutriculture).

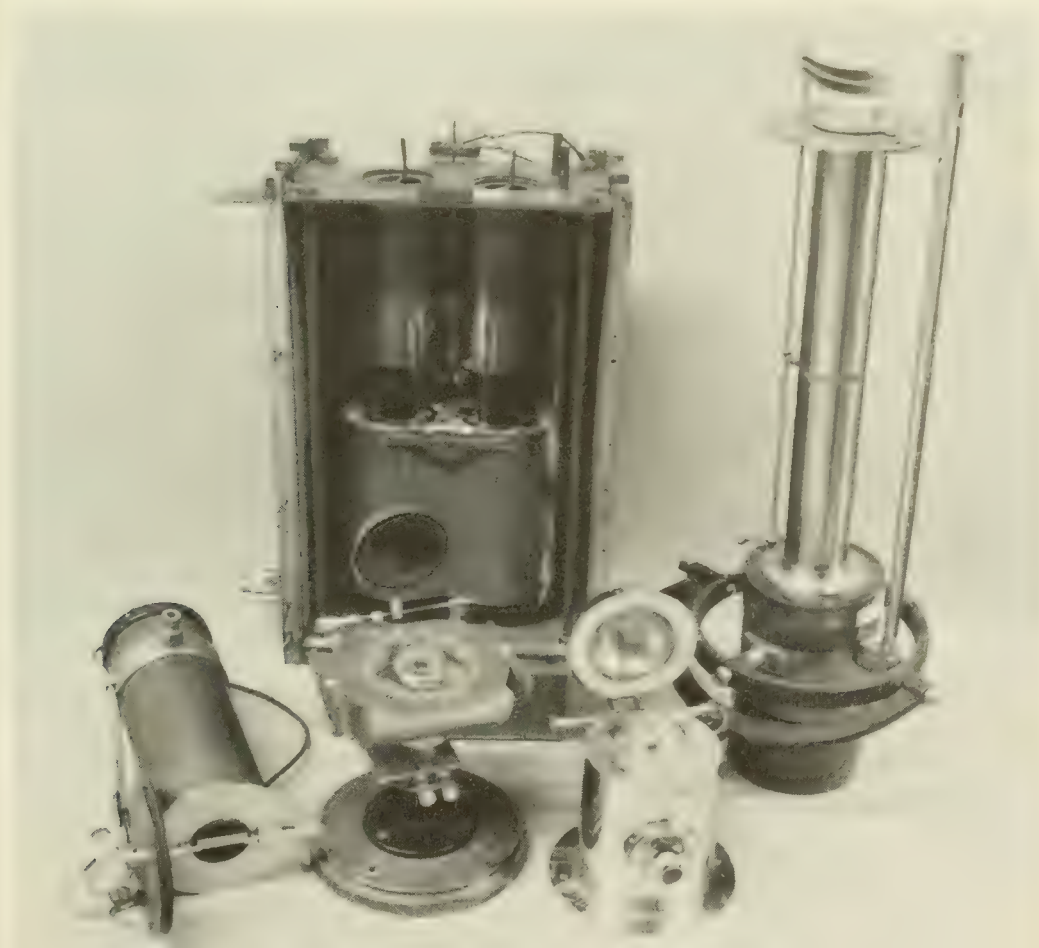
#### REGULATORY BIOLOGY

Light in the environment also may regulate the rate of synthesis of cell components or the rate of metabolism and growth of plant parts. Such light signals must be absorbed by pigment molecules to be effective. During the past year the laboratory has been isolating and purifying the pigment phytochrome. By hydrolyzing it in various ways and determining the amino-acid composition of the various



The Radiation Biology Laboratory scanning radiometer used to monitor the erythmal band of daylight. The unit shown monitors 5 nm bands of energy from 285 nm to 320 nm in Tallahassee, Florida.

Instruments used for measuring solar radiation. The instrument in the rear is the Smithsonian standard water-flow. The other instruments, from left to right, are a Smithsonian modified 1905 Angstrom normal incidence pyrhelio-meter, an Abbot pyranometer, a modified Abbot pyranometer and an Abbot silver disk pyrhelio-meter. The pyranometers are used to measure radiation from the sun and sky while the pyrhelio-meters and the water-flow measure only radiation from the sun (direct solar beam).



peptides produced, information has been obtained about the molecular weight and the chemical structure of this protein pigment.

The phytochrome pigment was isolated from dark-grown rye seedlings. After purification, electrophoresis, and gel permeation chromatography of the undenatured protein indicated a molecular weight of about 400,000 daltons. Disc gel electrophoresis in detergents indicated a principal product was formed with a molecular weight of about 120,000 daltons. Cleavage of the protein was performed with cyanogen bromide, which reacts with methionine residues. This produced five peptides: one of 15,000 daltons, a chromopeptide containing the light-absorbing portion (11,000 daltons), one about 8000 daltons, and two smaller ones. These data are consistent with the 13S phytochrome being composed of one species of protomer having a molecular weight of 42,000 and 4 methionine residues per protomer.

Another approach to the molecular function of phytochrome is the determination of the dependence of physiological responses upon the dose of light given. For a number of flowering plants, such as peas and mustard, dose-response curves were determined, as well as changes in the dose-response curves following sequential exposures to light. In addition, the capacity for rapid chlorophyll accumulation was measured. Data indicate that the physiologically active form of phytochrome produced by the first red exposure migrates to a membrane surface, which results in more light being required for a given response. But once light is absorbed, it is more effective because the active molecule is already attached to a membrane involved in the response.

For photosynthesis to occur efficiently, the incident sunlight must be absorbed in all wavelength regions. Algae have solved this problem by forming special pigment protein complexes known as phycobilisomes. These complexes trap the light energy and transfer it to a "reaction center," where it is used to produce energy-rich compounds. Phycobilisomes can be isolated and then dissociated into their component parts. A model has been developed this year that describes at the molecular level the spatial arrangement of at least four pigments involved and their attachment to the photosynthetic membranes.

The chloroplasts of higher plants also trap light energy and convert it to chemical energy. Formation of chloroplasts and the



maintenance of chloroplast structure is a fascinating problem that is attracting considerable attention. Making the proteins for a functional chloroplast requires cooperation between nuclear and chloroplast genetic systems. That is, the genetic material for and the synthesis of certain chloroplast proteins are located in the nucleus and cytoplasm respectively, while the genetic material for and the synthesis of other chloroplast proteins are located in the chloroplast. Part of the chloroplast protein synthesis occurs on chloroplast photosynthetic membranes.

During the past year, a system was developed in which biosynthesis of chloroplast photosynthetic membranes could be studied *in vitro*. In actively growing cells of the alga *Chlamydomonas*, a large portion of chloroplast ribosomes exists attached to the photosynthetic membranes. Electron micrographs of isolated membranes show that some of the ribosomes are bound as polyribosomes. When the membranes are dissolved by detergent, these polyribosomes can be recovered and account for more than half of the ribosomes bound to the membranes. These results suggest that the membrane-ribosome association functions in protein synthesis, because polysomes occur when active protein synthesis takes place. This assumption was confirmed by the finding that the isolated membrane-ribosome association will carry out protein synthesis. This protein synthesis reaction depends on the presence of the ribosomes attached to the membranes. It is inhibited by chloramphenicol, not by cycloheximide, as is expected for protein synthesis by chloroplast ribosomes. The protein synthesis reaction requires an energy generation system and a soluble cell extract. The reaction is inhibited by ribonuclease. These properties indicate that the protein synthesis reaction is carried out by the isolated membranes.

Blue light regulates the biosynthesis of yellow pigments, such as the vitamin A precursor,  $\beta$ -carotene. At least eight different carotenoids are synthesized after light exposure of dark-grown mycelial pads of the bread mold *Neurospora crassa*. The photoinduction of these pigments can be divided into at least three phases: (a) a rapid light reaction, (b) a period of protein synthesis, and (c) accumulation of the carotenoid pigment.

The effect of temperature on these processes has been studied this year. The light reaction, of course, is temperature-independent, but synthesis immediately following light exposure has an optimum

near 6°C. These data, as well as studies with inhibitors of protein synthesis, indicate that the light reaction produces an inducer that activates a gene. The genetic code in the activated gene specifies the amino-acid sequence of an enzyme required for carotenoid biosynthesis. This enzyme is apparently absent in dark-grown cultures. Furthermore, physiological evidence indicates that the inducer is lost from the carotenoid-synthesizing system in a temperature-dependent competitive reaction.

In addition, four different types of mutant strains of *Neurospora* were produced from wild type by uv light: albinos, which do not make pigment even in the presence of light; yellow-orange mutants, which synthesize a different distribution of pigments; mutants in which the sensitivity of carotenoid synthesis to temperatures above 6°C has been reduced; and mutants which can make pigment in the dark.

The activities of many enzymes in organisms from bacteria to man appear to be under the control of cyclic-AMP (adenosine monophosphate). For example, in man the hormones epinephrine or glucagon stimulate the synthesis of cyclic-AMP, which in turn activates a series of enzymes required for starch breakdown. Evidence has been obtained that animal cells that have been transformed by a virus to cancerous cells have lower than normal cyclic-AMP levels. There is evidence in frogs and rats that light controls the level of cyclic-AMP. We have obtained evidence that such a control system exists in *Neurospora* and may be part of the mechanism for photo-induction of carotenoid synthesis. Since cyclic-AMP probably regulates the activities of many different enzymes in *Neurospora*, then control of the level of cyclic-AMP by light should regulate a number of biochemical pathways besides carotenoid synthesis. Such a control mechanism can be conveniently studied in *Neurospora* and the results used to predict the type of control system that operates in higher organisms.

#### ENVIRONMENTAL BIOLOGY

Light acts not only as a carrier of information for regulating metabolism but is also absorbed and stored as chemical energy, along with the production of oxygen as a byproduct (photosynthesis). If leaves of plants are exposed to low temperatures (chilling), there is an inhibition in the rate of fixation of carbon dioxide. In addition, the



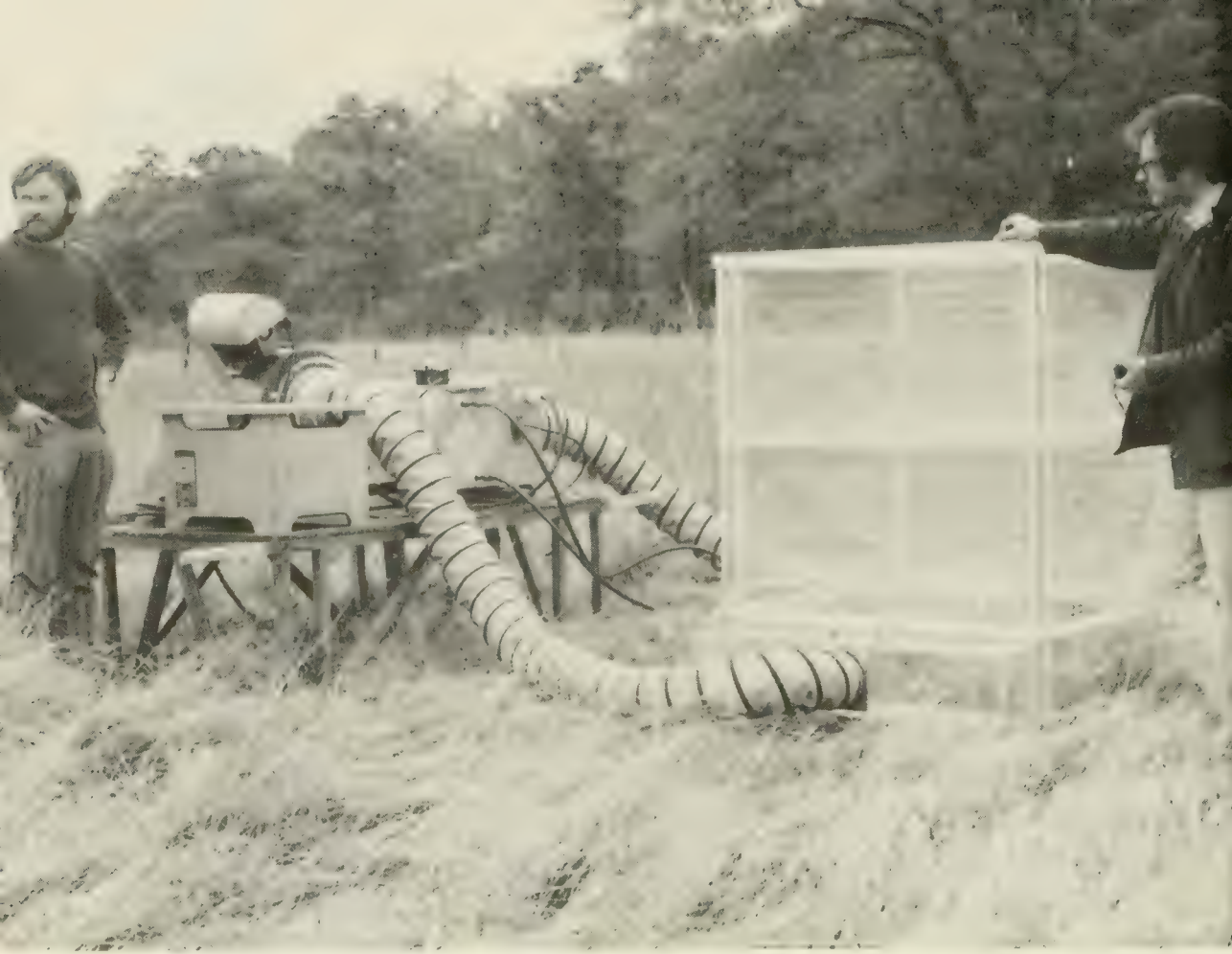
oxygen-evolving power of leaves after cold storage is regulated by mangano-protein in the chloroplast thylakoids. Since a great deal of the world's agriculture and the distribution of wild plant populations are limited by temperature, it is important to determine the portion of the photosynthetic mechanism directly affected by chilling. Plants that were grown under very warm conditions (30°C) were exposed to a succession of days and nights of cool (10°C day, 5°C night) temperatures, and the ability of whole leaves to take up carbon dioxide was measured. Within 24 hours after exposure to low temperature, the plants' capacity to take up carbon dioxide at warm temperatures was reduced by about 25 percent. Longer exposure to low temperature brings with it further reduction in carbon assimilation.

The process of photosynthesis involves considerably more than carbon dioxide assimilation, and in order to determine which of the many steps is affected by changes in temperature, a partitioning of the process was attempted. Photosynthetic cells from the leaf were separated from the remaining nonphotosynthetic tissue. Active whole cells were obtained which retain the capacity to evolve oxygen using light. Exposure of plants to chilling temperatures, however, does not consistently affect the capacity of cells extracted from these plants to evolve oxygen. Sometimes there is a substantial reduction in oxygen evolution and sometimes only minor change. The reason for this variability is as yet unknown.

Measurements have been made of the total productive capacity for communities of plants in a salt marsh in the Chesapeake Bay. It has been assumed that salt marshes contribute substantially to their neighboring estuaries and are consequently essential to the maintenance of life in the estuaries. Assimilated carbon in the marsh is exported to the estuary; however, most data for this assumption are based upon an incomplete examination of the capacity of the marsh to take up and metabolize carbon! A plastic chamber to enclose a section of the marsh community has been constructed in conjunction with a continuous flow, infrared, gas-analysis system to monitor the net carbon dioxide exchange over the marsh community.

In addition to net carbon dioxide exchange, a method has been evaluated for determining the amount of green matter in a marsh without the necessity of destroying any of the community being



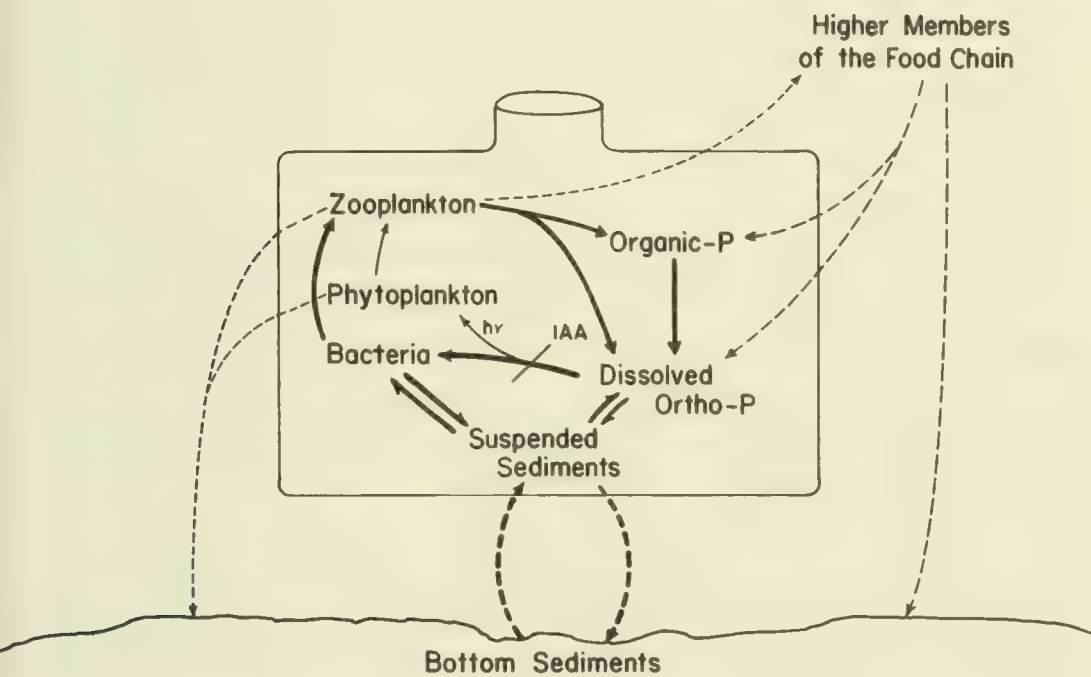


Plastic chamber for measuring net carbon dioxide exchange over a marsh community on an estuary of the Chesapeake Bay. Carbon dioxide concentration is determined in air as it enters and leaves the chamber. *Below:* Radiometer device for measuring reflectance of red and far-red light from a marsh community. Reflectance measurements are used in estimating the standing crop biomass.



studied. The method depends upon the fact that green plants reflect red light less than they reflect far-red radiation (light that is at and just beyond the sensitivity of the human eye). The seasonal change in reflectance of these two bands of light was found to change as the total amount of green matter in the stand of plants changed. This method was originally developed to study productivity of prairie communities, but the method appears to work in marshes. A correlation was found between the reflectance measurements and direct measurements of biomass obtained by cutting and weighing samples. Thus, a rapid, nondestructive assay of growth in marshes can be obtained. The method also has the advantage that the equipment is portable and, thus, usable in remote locations.

The growth of plants in an estuarine environment is sometimes limited by phosphorus cycling in the tidal environment. Phosphorus flux rates and phosphorus cycling *in situ* in the tidal marsh, mud flat periphyton, and plankton communities of the Rhode River sub-estuary of Chesapeake Bay were measured. Techniques employed included phosphorus-32-orthophosphate uptake and chase kinetics,



Current concept of the pathways of estuarine plankton phosphorus cycling. Processes stopped by enclosing a sample in a bottle are indicated as dashed arrows. Heavy lines indicate major processes. Phosphate uptake by phytoplankton requires light energy and the presence of iodoacetic acid (IAA) inhibits direct biological uptake of orthophosphate.



analysis of specific and total activity in various metabolically meaningful phosphorus fractions, detailed chromatographic fractionation, continuous-flow pulse-labeling of plankton, direct microscopic examination of microbial communities, and phosphorus-33 microautoradiography. From these data the major pathways of phosphorus cycling in estuarine plankton were constructed. The heavy arrows are believed to be main pathways. Microbiological data, as well as the size classing and inhibitor data, support this picture. Thus, orthophosphate is taken up mostly by bacteria that are mainly on the surfaces of suspended sediments and detritus, but phytoplankton also take up some orthophosphate in the light. The bacteria and phytoplankton are then eaten by filter feeders, especially ciliate protozoans. These in turn release most of the phosphorus as dissolved orthophosphate and organic phosphorus.

In addition, the phosphorus cycling in a deciduous forest when subjected to various levels of mineral nutrient loading was measured. Phosphorus loading of the leaf-litter zone beneath beech trees in Maryland was varied from the "natural" level (3 to 12 mg P.m<sup>-2</sup>·day<sup>-1</sup>) to 430 mg P.m<sup>-2</sup>·day<sup>-1</sup> above the natural level. Phosphorus-32 was used to measure rates and to determine pathways of phosphorus cycling. Upon increased loading, the phosphorus content of the litter increased fourfold and then stabilized. When this loading was discontinued, the phosphorus content of the litter declined to the original level. Phosphorus not assimilated by the leaf litter moved rapidly through the soil both vertically and horizontally. Forest trees obtained most of their phosphorus from the litter zone.

Sometimes the effects of a sudden dramatic changes in energy flow in the environment can be assayed. Such a dynamic stress occurred in tropical storm Agnes. Although the storm center circumnavigated the Rhode River estuary, the salinity reached a minimum about two weeks later because of flooding by the Susquehanna River. This event was coincident with the year's highest water temperature (30-31°C) and resulted in severe mortalities in the biota. Periphyton (attached microbial communities) experienced a nearly complete die-off. High levels of sediments and of nutrients, especially nitrate and total phosphorus, were delivered to Rhode River by the bay proper and from local runoff. These nutrients were deposited in Rhode River bottom sediments. This reservoir released nutrients a year later, especially at a time of low dissolved



oxygen in the bottom water and of intensive dinoflagellate blooms. In a 13-day period it is estimated that over 900 Kg phosphorus was released from the bottom sediments. Thus, even though the effects were indirect from tropical storm Agnes, they were large.

#### *CARBON DATING*

Because all living things are in equilibrium with the carbon dioxide in the atmosphere, and this equilibrium is fixed at the time of death, with the radioactive carbon<sup>14</sup> gradually decaying away as the sample ages, it is possible to determine the age of biological specimens back to about 40,000 years by measuring their radioactive carbon<sup>14</sup> content. From data taken from the remains and artifacts of archaic populations, it is possible to explore the relationships between changing environments and changing cultures.

From such artifacts a chronological framework is being constructed for populations in North America. In cooperation with anthropologists, geologists, and palynologists the time period 6000 B.C. to 2000 B.C. has been examined for northeastern North America.

Of particular interest is the date of entry of man into the New World. In cooperation with the University of Alaska, dating of selected archeological and geological sites discovered during construction of the Alaska pipeline have been accomplished. Recent findings published by the Scripps Institution, using the determination of racemic mixtures of aspartic acid, indicate that man was present in North America at least 50,000 years before the present. However, dates from the North Slope in our laboratory confirm occupation of more than 10,000 years ago.

Thus, the requirement for more energy to drive our technology that resulted in the need for the Alaska pipeline has yielded as a secondary scientific benefit an indication of man's early history in the New World.

#### *PUBLIC SERVICE*

Lectures and invited symposium talks were presented by the staff to more than 30 research institutions and universities, both nationally and internationally. Hundreds of reprints of published data were distributed to interested professional colleagues, and several staff members taught seminars and courses in their professional specialties.

## *Smithsonian Astrophysical Observatory*

On July 1, 1973, the Smithsonian Institution and Harvard University established at Cambridge, Massachusetts, a Center for Astrophysics to coordinate the related research activities of the Smithsonian Astrophysical Observatory (SAO) and the Harvard College Observatory (HCO) under a single director.

At that time, George B. Field, Professor of Astronomy at Harvard University, became the director of the joint facility and of both observatories, succeeding Fred L. Whipple of SAO and Alexander Dalgarno of HCO.

The creation of this new consolidated science program, drawing on the resources of the Smithsonian Institution and Harvard University to achieve scientific excellence, is both a response to the new research goals and opportunities of the present and a reflection of traditional ties of the past.

During the past decade, astrophysics has experienced an explosion of ideas. New windows on the universe have been opened by the discovery of radiation in unexpected bands of the electromagnetic spectrum. And the expanded use of rocket, balloon, and satellite experiments has allowed observation of this radiation from above the earth's obscuring atmosphere. Gamma rays, X-rays, ultraviolet light, and infrared radiation are all now observed almost as routinely as radio and visible waves. Each new spectrum window has revealed a vast and varied universe filled with objects defying the imagination: quasars, pulsars, X-ray and gamma-ray stars, black holes, and neutron stars, as well as massive interstellar clouds of dust particles and complex molecules.

When it was founded by Samuel Pierpont Langley in 1890, the goal of the Smithsonian Astrophysical Observatory was the increase and diffusion of knowledge about the earth and its immediate astronomical environment. This goal remains unchanged today; however, the technological developments in observational techniques and data analysis, coupled with unusual advances in theoretical astronomy, now allow Smithsonian scientists to expand their astronomical horizons to the very edge of the universe.

Two major scientific problems are at the core of this expanded astronomical research program. The first is the evolution of matter, starting with the explosive beginning of the universe some 20 billion

years ago. After the formation of galaxies and stars, some matter collapsed into those exotic and unusual objects known as quasars, neutron stars, and black holes.

The extreme physical conditions existing in these objects severely test all the fundamental principles of modern physics. Obviously, the evolutionary processes forming stars and galaxies hold clues to how the universe began — and how it may end!

The second problem concerns the cosmic matter that has cooled sufficiently for molecules and solid particles to form. The condensation of materials accompanying the formation of stars like our own sun apparently results in the formation of planets and the eventual emergence of life. Through continued studies of this matter in space, as well as of the sun, planets, and earth, SAO scientists seek to understand the processes that led to the origin of life in the universe.

The solution of these two problems in modern astronomy can be achieved only through the concerted efforts of a variety of investigators using a diversity of approaches. For example, the study of matter under extreme conditions can be approached through high-energy astrophysics, solar and stellar physics, or optical astronomy; while the study of solid particles can be approached through infrared and radio astronomy, planetary sciences or geoastronomy. Theoretical and laboratory studies underlie each approach. Each approach also requires quite different research tools, ranging from rocket, balloon, and satellite detectors for gamma-ray and X-ray astronomy, to shock-tube and radiation laboratories and computers for molecular and atomic physics.

The complexity of modern astronomical research thus demands the consolidation of efforts whenever possible. The Center for Astrophysics is designed for this purpose — to draw on the different strengths of the Smithsonian and Harvard observatories. The once loose groupings of scientists and projects are now concentrated in eight divisions representing the major approaches to the dual problems of cosmic evolution and life in the universe.

#### *ATOMIC AND MOLECULAR PHYSICS*

The laboratory and theoretical program of this division are closely related to other experimental and observational programs at the Center. Specifically, this group is concerned with the chemical re-



actions occurring in planetary atmospheres and interstellar clouds. Major efforts include the development of model potential methods in theoretical atomic physics, the calculation of atomic transition probabilities, and the application of laser techniques to atomic and molecular spectroscopy. The measurements resulting from the spectroscopic research will play a critical role in the interpretation of data returned from other Center space programs.

#### GEOASTRONOMY

This division continues SAO's long-term program to study earth dynamics, the upper atmosphere, and earth's gravitational field.

In cooperation with scores of other organizations around the world, the earth dynamics program is building the large data base necessary to define the kinematics, bulk dynamics, and mass distribution of the earth. The program depends heavily on SAO's sophisticated laser and camera satellite-tracking network, supported by the National Aeronautics and Space Administration.

The upper atmospheric research program uses computer analysis of the anomalies in satellite orbits to develop accurate models of the earth's gravity field and to define the forces exerted by both sunshine and earthshine.

A gravitational redshift project will utilize an extremely accurate, rocket-borne, maser clock, paired with a similar ground-based instrument, to test the equivalence principle of Einstein's Theory of Relativity in the gravitational field of the earth.

#### HIGH-ENERGY ASTROPHYSICS

The Center is emerging as a national leader in the field of high-energy astronomy, and particularly X-ray research, through its participation in the NASA-sponsored series of high-energy astronomical observatories (HEAO). Major efforts are directed toward construction and planning of experiments aboard the HEAO-B, now scheduled for launch in 1975 as the first true space observatory capable of high angular resolution X-ray observations. This satellite will permit the first studies of the X-ray structure of extended objects and complex sources. In the meantime, the division continues its analysis of data obtained by UHURU satellite, the pioneering experiment in this field. This effort has led to the first identification of a probable "black hole" in the constellation Cygnus.

Ground-based observations at Mt. Hopkins have led to the detection of gamma-ray emissions from the Crab Nebula.

#### *OPTICAL AND INFRARED ASTRONOMY*

This division's activities fall in four related areas: studies of infrared emissions from galaxies and H II regions; studies of the spectra of stars and circumstellar materials; analysis of the spectra of interstellar materials and planetary atmospheres; and optical studies of emission from X-ray sources and pulsars. Observations are made with Center instruments at Mt. Hopkins, Arizona; Agassiz Station, Massachusetts; and Boyden Station, South Africa; as well as with instruments at the Kitt Peak National Observatory, Arizona, and the Hale Observatories, California, and their respective Southern Hemisphere installations at Cerro Tololo and Las Campanas, Chile. The Harvard component of these observing programs is supported by the National Science Foundation (NSF).

This division's observational capabilities will be greatly enhanced by the addition of a large telescope of revolutionary design. This multiple-mirror telescope (MMT) combines six 72-inch mirrors in a hexagonal array around a central core to produce an instrument with the light-gathering capacity of a conventional 176-inch telescope. The MMT is now under construction jointly by SAO and the University of Arizona.

#### *PLANETARY SCIENCES*

Traditionally, SAO has been a recognized leader in the study of the smaller bodies of the solar system. Vigorous programs involving geochemical and petrological analyses of lunar and meteoritical samples continue, as does the remote sensing of planets, satellites, and asteroids, largely supported by NASA.

Observations of comets, combined with computer analyses of their orbits and laboratory studies of their physical properties, also continue. During the past year, the Center served as a major clearing-house for information related to the international program to observe and study Comet Kohoutek. Theoretical work in this field is being supported through Harvard by NSF.

#### *RADIO ASTRONOMY*

The Center's radio astronomy program results from the strong

efforts begun at the Harvard College Observatory with NSF support. It includes capability in both the centimeter and the millimeter wavelength bands of the radio spectrum. Laboratory facilities support the observational program by measuring properties of spectral lines in these wavelengths. This combined effort has identified several new interstellar molecules.

A cooperative program continues with the University of Texas to conduct observations in the 2- and 3-millimeter wavelength bands.

#### *SOLAR AND STELLAR PHYSICS*

The Center's unusually strong program in this field is founded on the observational data provided by the Harvard solar satellite program and the theoretical work done by SAO scientists in the development of model stellar atmospheres. The extensive data produced by the Harvard experiment aboard NASA's Skylab satellite should provide the basis for several years of analysis and interpretation leading to a new understanding of the energy-generation processes in the outer layers of the sun. The broad range of SAO-developed computer programs and theoretical techniques is being applied to the interpretation of ultraviolet solar and stellar observations, both from Skylab and other satellites such as Copernicus. In addition, the successful flight of a balloon-mounted 40-inch infrared telescope in early 1974 demonstrated the feasibility of further large-aperture flights for broadband photometry and mapping, multiband and galactic sources. This project was a joint venture of SAO, HCO, and the University of Arizona.

#### *THEORETICAL ASTROPHYSICS*

If the Center is distinguished by its broad spectrum of astrophysical problems under investigation, then it is the theoretical effort that serves as the catalyst encouraging active and fruitful interrelationships among different approaches to similar problems. Thus, the objectives of this division are to establish and maintain expertise in those areas of physics underlying the applications to astrophysics, to create active research areas along a broad front, and to alert the Center staff of new directions in astrophysics. Most important, perhaps, this division plays a major role in the Center's commitment to astronomy education: identifying, encouraging, and training new



astronomers, as well as bringing talented students and younger professionals into its research program. Much of this division's effort is also supported by NSF.

The pooling of Smithsonian and Harvard scientific resources in a Center for Astrophysics seems an appropriately modern and rational adaptation to the times. Oddly enough, it is more the natural evolution of the long relationship between the two organizations. Since 1955, when the headquarters of SAO moved to the grounds of the Harvard College Observatory in Cambridge, the two observatories have pursued astronomical research in close collaboration, with many members of the Smithsonian staff holding joint appointments at Harvard and using University-owned facilities.

The ties between Harvard and Smithsonian, however, reach back into the nineteenth century, when Harvard alumnus and United States President John Quincy Adams urged both his alma mater and his Congress to establish jointly an astronomical observatory to serve the nation, preferably under the aegis of the Smithsonian Institution.

Echoing this call for joint academic-government action, Joseph Henry, first Secretary of the Institution, later urged that any observatory established by the Smithsonian should be "closely connected with some well-endowed and well-established college or university."

Nearly a century and a half have passed, but the dreams of both Joseph Henry and John Quincy Adams are finally realized in the Center for Astrophysics. This cooperative venture has great implications for the future, not only because it may serve as a guide for other similar pairings of private and public institutions, but also because the basic goals it pursues must surely affect all aspects of human life — from genetics to energy production.

### *Smithsonian Science Information Exchange, Inc.*

This year has been an important one for the Smithsonian Science Information Exchange (SSIE) as it actively began its efforts to move from a national center for information about ongoing research to one more international in terms of coverage and use of its services. The Exchange, which has provided services to foreign users over the

years, has now begun to seek and include input on research in progress overseas in a more concerted way, while at the same time it has also increased its coverage at the national level.

Many of the problems now confronting our own government are of equal concern to other countries, and these new national priorities require a knowledge of ongoing research in other countries as well. Such information will ultimately be available through the Exchange as present plans to increase its coverage develop over the next few years. Efforts to increase coverage in such major areas as agricultural research, cancer, energy and environmental research are already underway, supported by both federal and nonfederal organizations as well as through the help of both national and international organizations.

The Exchange is presently exploring all feasible ways for collecting or developing access to a comprehensive record of worldwide scientific and technical research and development work in progress and to exercise vigorous United States leadership in creating a system for storing and exchanging such information with initial efforts directed toward those programs of primary national interest. These are at least seven data bases of ongoing research currently in existence in other countries and many others are being developed. Input or exchange from these as well as selected input in specialized areas of interest from other countries will enhance the value of the Exchange's data base to both scientists and research managers in the United States. Many of the systems currently in existence are based on systems that were developed along the lines of the Exchange's system following visits to the SSIE. Compatibility between systems will be encouraged wherever possible to facilitate exchange of information.

As a consequence of its efforts in the fiscal year 1974, the Exchange has increased foreign input and established methods for increased use of the Exchange by foreign scientists. To illustrate the latter, an agreement has been reached with the Institute for Documentation in the Federal Republic of Germany which will provide support for the use of SSIE services by a large number of German scientists over an initial one-year period. The project will provide an opportunity for a large number of German research investigators to observe firsthand the value of learning before publication what their colleagues in the United States are doing in areas

of research closely paralleling their own efforts. It may also expedite development of similar systems such as SSIE in Germany as well as lead to more cooperative efforts on problems of similar interest and an exchange of ongoing research information.

The Exchange has continued to explore and implement techniques for increased utilization of its information by coupling it with bibliographic information including both scientific journal literature and technical reports. These efforts include the use of publications containing the combined information as well as coupling of information obtained directly from the SSIE data base with that from other information systems, thus providing users of such material with the latest in both published and ongoing research information. Discussions have taken place with several Federal data-base systems to expand this approach and offer remote on-line searches of selected portions of the Exchange's data base.

Considerable progress has been made in the development and testing of a new machine-aided indexing system. This system, which was designed to help the Exchange's staff of professional scientists and engineers cope with the increasing volume of information coming into the Exchange, will also be of interest and value to other information systems of a similar nature. The system is not intended to replace the scientific expertise necessary for maintaining a high quality of indexing but rather complements it by picking up routine terms that are readily identifiable, freeing the scientists to concentrate on the more important aspect of conceptual indexing. Publication of the technique will be made following more extensive testing of the system in the coming year. This project is another example of the Exchange's continuing effort in research and development designed not only to improve the SSIE's system but make such developments available by publication for use throughout the information community.

The Exchange as a result of offering new services and expanding previously available ones has shown an increase in use in fiscal 1974 primarily as a result of making more scientists aware of the Exchange's services. The response by many users to the Exchange's *Newsletter* has been excellent in terms of increased subscriptions and products ordered through this organ. The Exchange's continuing user-evaluation program indicates that it is providing a highly useful and important service. The Exchange has also developed



closer liaison with Federal agencies to increase their utilization of SSIE services in the management of their own research programs particularly in areas of high national interest.

### *Smithsonian Tropical Research Institute*

This year marked a change in the administration of the Smithsonian Tropical Research Institute. Dr. Martin H. Moynihan, in order to devote his full time to research, resigned to become a senior scientist at the Institute after directing this bureau for 16 years. During this period he guided STRI's growth from a biological preserve and small field camp on Barro Colorado Island to a research institute with a worldwide reputation. During Dr. Moynihan's tenure the permanent professional staff increased from 1 to 15, and the geographic scope of their investigations extended from Barro Colorado Island and the surrounding forests to adjacent areas of Central and South America, and then to intertropical comparisons in Gabon, Ceylon, India, Madagascar, Malaya, and New Guinea. Moynihan supported a program of student fellowship at both the pre- and post-doctoral level and encouraged a steadily increasing number of scientific visitors from around the world.

The research of the institute's staff closely reflects the depth and diversity of Dr. Moynihan's own scientific interests, which in the last 15 years have ranged from the behavior, evolution, and ecology of such diverse groups as birds, primates, and cephalopods. Research on the latter group was facilitated by the development of a marine research program and STRI marine laboratories on both the Atlantic and Pacific coasts of Panama.

Ira Rubinoff was appointed the new Director, and A. Stanley Rand has assumed the responsibilities of Assistant Director of STRI.

The development of STRI research program was paralleled by an increase in facilities and support staff. These include, new animal-keeping facilities, air-conditioned laboratories, sea-water systems, research vessels, and an excellent tropical biology library, which now includes over 14,000 volumes and served approximately 4000 patrons in fiscal 1974.

Research at STRI continues to be primarily concerned with basic

scientific questions of the evolutionary and ecological adaptations of tropical organisms.

Two new scientists joined our staff in the fiscal year 1974. Olga F. Linares is an anthropologist studying human paleoecological processes and contemporary subsistence adaptations to the American and African tropics. Alan P. Smith, a plant ecologist, has accepted a joint appointment with STRI and the University of Pennsylvania. He will examine the physiological adaptations to seasonality of plants on Barro Colorado Island.

Scientists at STRI continued their studies concerning a variety of organisms.

R. L. Dressler spent several weeks in field work in Mexico studying orchids and their pollinators. He published two books: *Orquídeas de las Américas* (with Mariano Ospina H.), the first general reference book on American orchids in Spanish, and *The Genus Encyclopaedia in Mexico* (with Glenn E. Pollard), the first detailed treatment of that group. A Spanish edition of the latter volume will be published shortly.



Pollination of *Polycynis barbata* by *Eulaema speciosa*. When the male bee lands on the lip to gather the perfume, its weight pulls the flower down and the curved column touches the dorsal surface of the bee, depositing pollen. Pollination results if the bee already carried pollen from another flower.

The history of coral reefs off both the Atlantic and Pacific coasts of Panama are being investigated by Peter Glynn and his associates. They are taking core samples through the reefs in order to determine the age of the reefs and their species composition at different levels. Reefs in Panama have been found to be about 6000 years old. Over the past 1000 years significant changes in coral populations have occurred on a Caribbean fringe reef, but the causes of these changes are not presently known.

J. Graham studied the diving capability of the sea snake *Pelamis platurus*, which is common along the Pacific Coast of Panama, and found that while the snake has some of the typical adaptations found among vertebrate divers, it can also respire aquatically. J. H. Gee of the University of Manitoba spent a sabbatical year at STRI and collaborated with Graham and F. S. Robison in a study of buoyancy adjustment during diving of sea snakes.

E. Leigh took a field trip to the Amazon region of Peru to continue his comparative studies of the structure of tropical forests.

M. Moynihan and A. Rodaniche have continued their studies on the social behavior of the Caribbean squid *Sepioteuthis sepioidea* and have begun observations on a number of Pacific Ocean cephalopods. M. Moynihan has completed his book *The New World Primates*, which should be published shortly.

A. S. Rand continues his analysis of the displays of species of *Anolis*. He began to develop the first animated lizard display film, which will provide a tool for dissecting displays into their components and analyzing the functional aspects of these components.

Michael and Barbara Robinson continued studies of the ecology and behavior of tropical spiders. They investigated the ontogeny of predatory behavior in orb-web spiders, demonstrated by deprivation experiments that the spiders' ability to discriminate between certain types of prey is not dependent on previous experience and is, therefore, not learned. In New Guinea, the Robinsons resumed studies of the defensive behavior of the rich orthopteroid fauna of the island. The latter studies suggest that the evolution of defensive behavior in these insects has been strongly influenced by the presence of a unique assemblage of predatory nocturnal marsupials.

R. Rubinoff continues her studies of the behavior of the sea urchin *Diadema antillarum* and has succeeded in demonstrating a social component to their "clumping" behavior.





Excavating a small village site dating from A.D. 300 in Cerro Punta,  
Volcán Barú area, western Panama.

*Scarus ghobban* and *Acanthurus triostegus*, Pacific Panama.



Virtually all of the Swainson's Hawks in the United States pass through Panama during migration, as do large numbers of other North American hawks and vultures. By photographing the sky along the migration routes, Neal Smith has begun to evaluate the abundance and population characteristics of these hawks. These data should provide a useful index of the environmental quality of the North American nesting areas of these birds.

N. Smythe, in addition to his work with the Environmental Sciences Program, continues his studies of mammalian behavioral ecology.

H. Wolda continued his studies of fluctuation in abundance of insect species. The moth *Zunacetha annulata*, which had a major outbreak in 1971, had a somewhat smaller outbreak in 1973. Species of the homopteran genus *Empoasca* had major peaks in abundance in March-April in the last three years and were virtually absent in the same period in 1974. The cicada *Fidicina mannifera* was much less abundant in 1973 than in 1972, as evidenced by monitoring the sound, number of pupal cases, and by light-trap data. Among the important factors influencing these fluctuations are the strategies of the species in dealing with unpredictable patterns of rainfall and dry season.

C. Birkeland is comparing the community structure and dynamics of benthic marine populations on the coasts of Panama.

D. Meyer continues his studies of crinoid populations in collaboration with B. Macurda of the University of Michigan.

P. Campanella has examined territorial behavior of four species of dragonflies. Males of some species show a high degree of mating site specificity, which appears to be related to population density and availability of suitable ovipositing sites. Territory sizes are reduced and spatial overlap is avoided by using the ponds at different times of the day.

M. May has continued studies on the effects of heat exchange, heat production, and thermal tolerance in dragonflies of such factors as body size, temporal and spatial distribution patterns, and various energy-using activities.

R. Warner began an investigation of the adaptive significance of intersexuality commonly found in coral-reef fishes. He is correlating population structure and behavior with the dynamics of sex change in these fishes.





Juvenile ocelot on Barro Colorado Island.

Red spider monkey on Barro Colorado Island.





Censuses of Polistine wasps were carried out for a second year in Costa Rica by D. Windsor. He has shown that in response to the poorer foraging conditions and higher predator pressures of the dry season there is an increase in the number of females per nesting attempt. These and other observations indicate that sociality has evolved to aid reproduction during periods of poorer environmental conditions.

The carnivores of the New World tropics are poorly known, particularly when compared with those of Africa and Asia, where recent studies on mongoose, lion, hyena, and tiger have been published. R. F. Ewer has been at STRI for the past year as a visiting senior scholar. She has been studying the ethology of two neotropical cats (ocelots and jaguarundis) and two mustelids (tayras and grisons). Particular attention has been devoted to studying social and prey-capturing behavior.

D. Robertson, supported by a Commonwealth Science and Industrial Research Organization (CSIRO) fellowship, is studying the patterns of spawning activities in *Thallasoma bifasciatum* and its relationships to hermaphroditism in this species.

Y. Lubin completed her study of the nonadhesive orb-webs of *Cyrtophora moluccensis* and is now collaborating with G. Montgomery on a radio-tracking study of tamandua.

In fiscal 1974 the Smithsonian Institution's Environmental Sciences Program continued ecological monitoring at the three STRI sites in Panama. This interbureau effort in the tropics currently involves the cooperation of about 10 principal investigators from four bureaus. Spectral quality of solar radiation is being measured at Flamenco Island. On Barro Colorado Island the emphasis is on the tropical forests. We are beginning to understand the way in which year-to-year fluctuations in climate, particularly in the amount and distribution of rainfall, affect the plants and their responses, in turn, affect the animals. At Galeta, studies are proceeding on the reef flat. Interest focuses on the causes of unpredictable periods of reef exposure and the impact these have on the intertidal community and its recovery patterns.

STRI sponsored a workshop on the problems and strategies of seedlings in tropical forests. Eight scientists from four countries participated in a three-day meeting on Barro Colorado Island (BCI).

This year grants were obtained from the Henry L. and Grace

Doherty and the Edward John Noble foundations for the purpose of providing short-term fellowships to assist students in tropical research. A number of students from United States and Panamanian universities have already begun research supported by these funds.

A number of our staff engaged in formal teaching this year. O. Linares taught Anthropology at the University of Texas. J. Graham taught in the Fundamental Ecology course of the Organization for Tropical Studies. P. Campanella gave a course in Ecology at the Canal Zone College, and M. Robinson taught Invertebrate Behavior at the University of Papua and New Guinea.

Use of STRI facilities continues to increase. STRI was host to 722 scientific visitors from 111 universities and other organizations. These visitors represented 28 states and Puerto Rico as well as 21 countries from the Old and New Worlds. Twenty of these visitors spent a full year at STRI. The appointment of M. Quinley in February as part-time docent has enabled us to initiate tours of STRI by primary and secondary school and university groups.

During 1974 major redevelopment of the BCI waterfront area was begun. The old boathouse was demolished, dredging has been completed, and the driving of new piles is scheduled. A new boathouse and bulwark are planned. A small dormitory has been provided for the Pacific Coast marine facilities.

Renovation of the new Tivoli laboratory has been initiated. The building has been reroofed, the exterior painted, and work has begun to install the first seven laboratories.



Mr. Joseph H. Hirshhorn, who gave his great collections of sculpture and paintings to the Nation, receives the James Smithson Society Medallion from Secretary Ripley.



## HISTORY AND ART

IN SINGLING OUT a few particularly noteworthy events of the past year one runs the risk of paying too little attention to the continuing, quiet achievements that in the long run are perhaps more important. The temptation to stress dramatic change at the expense of often undramatic continuity is familiar to every historian, and to every writer of annual reports.

Before succumbing to the temptation, then, we should at least begin by saying that the past year was marked by steady growth and consolidation within each of the Institution's history and art bureaus, and by encouraging signs of continuing cooperation among them. Without exception, collections were improved both by acquisition and by conservation; control over collections was strengthened by better cataloguing and storage techniques; new exhibitions were mounted with satisfying regularity; research and publication continued in the best Smithsonian tradition; and programs of public education made our collections and our research more accessible to thousands of children and adults.

The gradual growth of cooperation among our history and art bureaus is another very welcome aspect of continuity rather than of dramatic change. The joint appointment of a Curator of American Art by the Freer Gallery of Art and the National Collection of Fine Arts will strengthen both museums and will bring the Freer's important collection of American paintings into the mainstream of scholarly activity. The Renwick Gallery of the National Collection of Fine Arts, our museum-without-a-collection, continued to make imaginative use of objects from the collections of the Museum of Natural History and the Museum of History and Technology in illuminating exhibitions on the subject of design. The establishment in the Museum of History and Technology of the Dwight D. Eisen-

hower Institute for Historical Research, and the appointment of Dr. Forrest Pogue, the distinguished biographer of General George C. Marshall, as its first director is the result of happy and fruitful collaboration between that museum and our National Armed Forces Museum Advisory Board. With the cooperation of the National Portrait Gallery, the Archives of American Art will soon be able to open an exhibition gallery in the Old Patent Office building, allowing the public to see for the first time some of the treasures in its vast documentary collections. These developments, none of which is likely to earn headlines, are evidence that the varied entities that compose the Smithsonian Institution have the will and the means to work together toward a common purpose.

We must now duly note, on the other hand, that the past year did not lack its share — indeed, perhaps more than its share — of dramatic events.

After what seemed to be years of delay and frustration, the General Services Administration declared that the Hirshhorn Museum and Sculpture Garden was “substantially complete.” The difference between this somewhat mysterious technical determination and the existence of a museum ready for the public is considerable; the first three months of the next year will be a time of unceasing activity for the museum’s staff and the Institution’s support facilities.

The closing months of the past year also saw the accomplishment of a major part of what must surely be the largest shipment of art in the history of this country. With remarkable smoothness, at least from the point of view of one observing with admiration from some distance, the great Hirshhorn collections of sculpture and painting were moved from various sites in New York City and Connecticut to their home in and about the museum and sculpture garden on the Mall.

This was also the year in which the Museum of History and Technology gained a new director, and the Institution shared in the reflected glory of its first Pulitzer Prize. The prize winner was Daniel Boorstin, for *The Democratic Experience*, the concluding volume of his trilogy *The Americans*. Upon becoming a Senior Historian, Dr. Boorstin was succeeded in the directorship of the Museum of History and Technology by Dr. Brooke Hindle, a distinguished historian of early American science and technology. An outstanding scholar who has long been associated with museums, and whose university experience includes service as a departmental chairman and a dean, Dr.



Brooke Hindle (center), new Director of the National Museum of History and Technology, listens as Assistant Secretary for History and Art Charles Blitzer (left) compliments Senior Historian Daniel Boorstin, winner of the Pulitzer Prize for his book *The Democratic Experience*, concluding volume of his trilogy *The Americans*.



Hindle brings to his new position the experience, the talents, and the enthusiasm required for the directorship of the world's most visited museum.

The geographical scope of the Smithsonian was expanded during the past year by the opening of the West Coast regional center of the Archives of American Art. These centers, which now exist in Detroit, New York, Boston, and San Francisco serve both as regional research centers in which scholars may have access on microfilm to the entire holdings of the Archives, and as the foci of the Archives national collecting program. Often housed in contributed space — we are indebted to the DeYoung Museum for the new center — and staffed by only two or three people, these centers have an extraordinarily positive effect on the study of the history of American art in their regions.

After many years of activity behind the scenes, carried forward with the generous support of the Congress, the Smithsonian's program of activities for the Bicentennial of the American Revolution produced its first public manifestation in 1974: the exhibition at the National Portrait Gallery entitled "In the Minds and Hearts of the People — Prologue to the American Revolution: 1760-1774." Enthusiastically reviewed by the press, and editorially commended by *The Washington Post*, this exhibit is the first in a series of exhibits, publications, and festivals with which the Institution will mark our Nation's two-hundredth birthday. It is also pleasant to be able to report here that the National Collection of Fine Arts, which had suffered patiently the inconveniences of subway construction outside its walls for several years, now enjoys once again the use of all its galleries and of its front door. With the reinstallation of the Lincoln Gallery, and the completion of galleries for miniatures and non-American works, the NCFA is now able to show its collections and to mount temporary exhibitions more appropriately and handsomely than ever before.

In short, then, the past year has been one of steady growth punctuated by occasional, dramatic leaps forward. Between milestones — such as the fiftieth anniversary of the Freer Gallery last year, the opening of the Hirshhorn Museum next year, and the expected opening of the Cooper-Hewitt Museum the year after — the real progress takes place.

Finally, we must sorrowfully record the death during the past year

of Mrs. Marjorie Merriweather Post, one of the Institution's greatest benefactors, and of Miss Elisabeth Houghton, a beloved and valued member of the Board of Trustees of the Hirshhorn Museum. Each will be remembered by the Smithsonian and by the public for her contributions to our collections and museums.

### *Archives of American Art*

With five regional offices in full operation for the first time, the Archives experienced an unusually active year in both acquisitions and use of its resources. Among the larger and more significant collections of papers received were those of the New York sculptor Paul Burlin, the painters Frank Duveneck, Barry Faulkner, and Henry Varnam Poor, the painter and designer Gyorgy Kepes, and the Detroit collector Hawkins Ferry. Records of three major art galleries — Doll and Richards in Boston and the Rose Fried and Maynard Walker Galleries in New York — were also accessioned. The work of Walter Heil, Douglas MacAgy, and Alan Solomon, all nationally prominent administrators and exhibition organizers, is reflected in large groups of personal and professional papers. Institutional records made available for microfilming by the Archives included those of the Cranbrook Academy and the Allen Memorial Museum in Oberlin, Ohio.

Three particularly interesting smaller groups of papers are a long series of letters from Alfred Stieglitz to Arthur Dove, written in the 1920s and 1930s; 15 Maurice Prendergast letters to a friend and collector, Mrs. Oliver Williams, and a diary kept by the New York dealer William Macbeth in the 1870s and 1880s.

Thirteen hundred calls for documentation offered by the Archives were made by visiting researchers at all regional offices, an increase of one hundred over fiscal 1973 in spite of several weeks of interruption in service in the New York office. Over a thousand letters of inquiry were answered and 520 rolls of microfilm were lent out through interlibrary loan. The latter figure represents a 25-percent increase over the previous year.

The Archives' New York office underwent a major renovation in the fall and held an opening reception, with a display of documents, in its new quarters on the ground floor at 41 East 65th Street, in late November 1973. Another display of documents was arranged in

March 1974 in connection with a reception held to explain the Archives to New York art dealers. An exhibition of letters from Fitzwilliam Sargent containing passages on the growth and education of his son John Singer Sargent was displayed at the Washington office.

The Archives Oral History Program continued its activities during the year. Twenty-one interviews with artists were taped and 33 tapes were transcribed. A grant from the Andrew W. Mellon Foundation, received in December, will enable the Archives to work off a backlog of 165 untranscribed tapes. As an aid to researchers, the Archives published a descriptive guide to 306 transcripts of interviews conducted between 1958 and 1971.

The Archives was the subject of three articles, one written by Russell Lynes and published in *American Heritage*; one by David Sokol published in *Art in America*, November-December 1973; and a third by Garnett McCoy published in *Manuscripts*, Summer 1974. In addition, 32 books, articles, and exhibition catalogues published during the year acknowledged assistance from Archives resources. Among these were James R. Mellow, *Charmed Circle*; June L. Ness, *Lyonel Feininger*; Richard G. Coker, *Portrait of an American Painter: Edward Gay*; Marguerite Zorach, *The Early Years, 1908-1920* (National Collection of Fine Arts); *Robert Loftin Newman* (National Collection of Fine Arts); *Vorticism and Its Allies* (Arts Council of Great Britain); and *Jacob Lawrence* (Whitney Museum of American Art).

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### *Cooper-Hewitt Museum of Decorative Arts and Design*

Renovation activity has begun at the Carnegie Mansion and the first phase should be completed by July of 1975. The collections and exhibitions will be installed and the Museum will reopen to the public in the winter of 1975-1976.

During the past year the Museum organized a major exhibition of over 300 drawings, textiles, and wallpapers entitled "The Art of Decoration: Drawings and Objects from the Cooper-Hewitt Museum" at the Brooklyn Museum. A lecture series was given by the staff in conjunction with this exhibition. A second exhibition, of Winslow Homer drawings, was shown at the Columbia Museum of Art and the Telfair Academy in Savannah. In addition, objects from the collection were included in exhibitions at 23 institutions including the Metropolitan Museum of Art, National Gallery of Art, Baltimore Museum, Art Institute of Chicago, Pennsylvania Academy, Princeton University, Harvard University, Amherst College, Rice University, Finch College, and Pratt Institute. Exhibitions of nineteenth-century American drawings and new acquisitions in textiles were shown briefly in the Carnegie Mansion.

The collections were enriched by 671 items. The most outstanding gifts were the "Martin Scrapbook" containing samples of eighteenth-century French block-printed fabrics and Indian chintzes, a gouache

drawing by Gino Severini, 8 nineteenth-century colored engravings of political cartoons, a nineteenth-century American cast-iron mantel, 2 cast-iron baluster panels designed by George G. Elmslie, a fashion drawing by Erté, 2 wallpapered folding screens, a collection of turn-of-the-century embroideries and embroidered samplers from the Eva Johnston Coe Collection. A total of 1562 objects were catalogued and 280 costumes were sent to the Smithsonian in Washington on long-term loan.

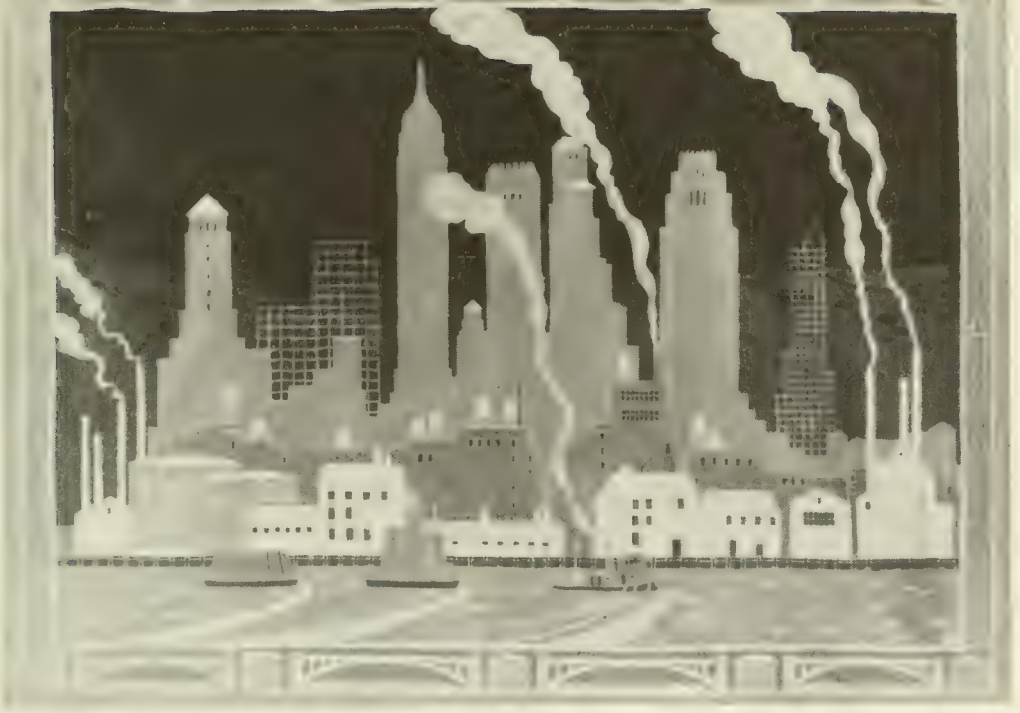
The William H. Goodyear collection of architectural photographs was transferred to the Cooper-Hewitt Library from the National Museum of History and Technology. John Maximus gave another portion (1919 items) of his classified pictorial reference library. The Color and Light Archive was enlarged with a gift of 1293 items on color by Mrs. I. H. Godlove.

A beginning was made toward the formulation of an Environmental Design collection dealing with the processes of design — how design has been influenced by natural, technological, and cultural forces, how it affects the human being physically and psychologically, and how it shapes landscapes and lifestyles. A meeting of 40 leading architects, designers, planners, and educators was held to advise on the development of this collection.

The Museum is presently conducting a study to determine the kinds of information designers need, the format of such an information system, and its use by professionals and the public. In order to facilitate research and to save wear and tear on fragile objects, a color slide catalogue of the collections was begun. This project has been generously supported by the National Endowment for the Arts, New York State Council, and the Mary Duke Biddle Trust. Slides of over 6500 items have been made to date, as well as a slide kit of embroideries. An anonymous gift was received to make a prototype film on traditional crafts in danger of disappearing.

A series of lectures entitled, "The Fin de Siecle Medici: Carnegie and the Designer" was held in the Carnegie Mansion. Billy Baldwin, the famous New York interior designer, gave 4 lectures on "Decorating Today." Five lectures and a colloquium were given for the membership and 19 additional lectures were given by curators at other museums. The children's workshops continued, and a tour was organized to see the furnishings and windows for Louis Comfort Tiffany's famous chapel in the workshop where they are being restored.





*New York Waterfront, 1926-1940*, a hanging by Lydia Bush-Brown (Mrs. Francis Head), who recently presented it to the Cooper-Hewitt Museum of Decorative Arts and Design.



An American cast-iron, mid-nineteenth century mantel with Eglomisé panels, one of a pair. Its height including shelf is 56¼ inches; its height to the top of the arch is 36 inches; width of the arch is 35 inches, and length of the shelf is 71 inches. This mantel was given to the Cooper-Hewitt Museum of Decorative Arts and Design by Mrs. Whitney Atwood.



Three members of the curatorial staff, Elaine Evans Dee, Milton Sondag, and Catherine Lynn Frangiamore, received foundation grants for research outside of the Museum. Mrs. Frangiamore's book on wallpapers used in America will be published by Praeger next spring. The staff was enlarged by two: Dorothy Twining Globus, who joined the Museum's permanent exhibition staff, and Arete Swartz, from the Victoria and Albert Museum, who worked in the education department on a one-year grant. Twenty scholars studied the collections, and 7 student interns received training. Special lectures were given for visiting classes from New York University, City University of New York, the Art Students League, Pratt Institute, and Yale University.

The Museum held an extremely successful benefit auction under the chairmanship of Mrs. H. J. Heinz II. All of the items were donated expressly for the sale by collectors, dealers, and other friends of the Museum. A total of \$125,000 was raised for the building fund. Grants were received from the Charles Hayden Foundation, Janet Neff Charitable Trust, Maya Corporation, Elsie de Wolfe Foundation, and New York Community Trust, and an additional \$72,000 was raised, largely from corporations and individual designers for a Study Center in memory of Doris and Henry Dreyfuss.

### *Freer Gallery of Art*

During fiscal year 1974 the Freer Gallery of Art celebrated its fiftieth anniversary. To mark that occasion, the Gallery presented three special exhibitions: "Japanese Ukiyoe Painting," "Chinese Figure Painting," and "Ceramics from the World of Islam." The Gallery published illustrated catalogues for each exhibition and organized international symposia devoted to analysis of the three different themes. Approximately 200 scholars and students participated in each of the three programs. These anniversary activities and publications, which focused on the arts of the Far and Near East, summarized a half century of acquisitions and research.

On May 2, 1973, the Freer Medal was presented to the Japanese specialist, Professor Tanaka Ichimatsu; on September 17, 1973, the recipient was the noted museologist and historian of Chinese art,



Prime Minister Tanaka of Japan (second from right) watches intently as Harold P. Stern, Director of the Freer Gallery of Art, unrolls a treasured painted scroll. Prime Minister Tanaka visited the Freer Gallery of Art July 30, 1973.





Empress Farah of Iran is shown a part of the Freer Gallery of Art's Persian collection by Dr. Harold P. Stern, Director, and Dr. Esin Atil (right), Curator of Near Eastern Art. Looking on is Karim Pasha Bahadori of the Empress' staff.

Japanese pottery urn. Jomon period, prehistoric; its height is  $19\frac{3}{4}$  inches and its rim diameter is  $12\frac{1}{2}$  inches. Freer Gallery of Art, 74.5.





Mr. Laurence Sickman; and on January 16, 1974, the award was given to the renowned Near Eastern scholar, Professor Roman Ghirshman. The three men were honored as recipients of the Freer Medal for their "distinguished contribution to the knowledge and understanding of Oriental civilizations as reflected in their arts."

Construction of a specially designed X-ray room and installation of initial X-ray equipment will enable the Freer Conservation Laboratory to keep pace with its steadily increasing activities. This essential equipment will considerably facilitate the examination of objects in the Collection and those being considered for study or purchase. In addition, two X-ray diffraction cameras and tracks will be used to identify pigments and corrosion products.

In the course of fiscal 1974, the Collection has expanded by the accession of 36 objects. Of those, several fine items were acquired by gift from the estates of Mrs. Agnes E. Meyer and Mr. Myron Bement Smith. Other objects of importance were presented by Mrs. Anna Chennault and Mr. Yoichi Nakajima.

Harold P. Stern, Director, participated in the seventh meeting of the United States-Japan Conference on Cultural and Educational Interchange in Tokyo on June 17-20. Thomas Lawton, Assistant Director, and W. Thomas Chase III, Head Conservator, were among the 12 members of the American Art and Archaeology Delegation who visited the People's Republic of China from November 10 through December 9, 1973.

Special exhibitions at the Freer Gallery were "Turkish Art of the Ottoman Period" (August 1, 1973, through December 19, 1973), "Chinese Figure Painting" (September 11, 1973, through November 30, 1973), and "Ceramics from the World of Islam" (January 17, 1974, through June 30, 1974).

Rutherford J. Gettens joined the staff of the Freer Gallery of Art on October 1, 1951. During the more than 20 years of his association with the Gallery, he was instrumental in establishing the Technical Laboratory and in maintaining its high level of research. His publications on problems relating to pigment analysis and on the fabrication of Chinese bronze vessels achieved an international reputation for him and the Laboratory. After his retirement in 1968, Mr. Gettens remained active in the position of Research Consultant. His unexpected death on June 17, 1974, at the age of 74, is an irreplaceable loss.

## *Hirshhorn Museum and Sculpture Garden*

The public opening of the Hirshhorn Museum and Sculpture Garden is scheduled for October 1, 1974.

Final plans were developed for the inaugural exhibition, utilizing scale models, photographic aids, and full-scale mock-ups in styrofoam of monumental pieces of sculpture, to help determine placement of works in the outdoor sculpture garden and plaza.

Production was completed on postcards, reproductions, and color slides illustrating outstanding works from the Collection which will be available to the public in the Museum shop.

It was a year marked by the transfer of the Hirshhorn Museum and Sculpture Garden (HMSG) offices and personnel from New York to temporary quarters in the Arts and Industries Building in July 1973; and then to the new building on December 27, 1973. Beneficial occupancy of the new Museum was accepted by the Smithsonian on March 29, 1974.

On April 17, 1974, title to the extensive collections included in the Agreement of May 17, 1966, passed from Mr. Joseph H. Hirshhorn to the Smithsonian Institution. This action was immediately followed by implementation of previously established plans for moving the Collection.

The substantial task of moving the Hirshhorn Museum and Sculpture Garden collections to Washington, D.C., from various points including New York City, Greenwich, Connecticut, and Toronto, Canada, was commenced on April 14, 1974. The move was accomplished on schedule, with pieces in the opening exhibition being in the vanguard in order to permit the Exhibits and Design staff to begin the installation.

In 1974 the inaugural book/catalogue went to press. This 750-page volume includes 1001 paintings and sculptures which are documented and reproduced — 296 in color. The foreword is by S. Dillon Ripley, Secretary of the Smithsonian, with an introduction by Abram Lerner, Director of the Hirshhorn Museum, and essays by six outstanding art scholars. These complement the selected commentaries and historical data, and make up a scholarly and stimulating volume. A souvenir booklet, *An Introduction to the Hirshhorn Museum and Sculpture Garden*, is also in production.

Looking beyond the Museum's opening, research was begun on



The Hirshhorn Museum and Sculpture Garden.

*Head (Elegy)*, 1952, by Dame Barbara Hepworth. Mahogany and string, 16 $\frac{7}{8}$  x 11 x 7 $\frac{1}{2}$  inches. Hirshhorn Museum and Sculpture Garden, S215.







*Waterfall*, circa 1943, by Arshile Gorky. Oil on canvas, 38 x 25 inches.  
Hirshhorn Museum and Sculpture Garden, JH64.200.



*Houses of Parliament*, 1881, by Winslow Homer. Watercolor on paper, 12½ x 19½ inches. Hirshhorn Museum and Sculpture Garden, JH58.6.



*Circe-Rapport de Contreras*, circa 1965, by Joseph Cornell. Collage, 8½ x 11½ inches. Hirshhorn Museum and Sculpture Garden, JH67.78. (Photograph by Geoffrey Clements)



*The Hostess*, circa 1918, by Elie Nadelman. Painted cherry wood, 32½ x 9¼ x 13½ inches.  
Hirshhorn Museum and Sculpture Garden, S286. (Photograph by Robert E. Mates)



the program of future exhibitions. A series of research exhibitions were planned, as well as a program for research fellows. In fiscal year 1974, too, documentation and cataloguing of the permanent collection progressed.

During this period the staff paused to mourn the passing of two dedicated individuals who contributed greatly to the planning and development of the Museum's programs: On March 2, 1974, the staff was saddened to hear of the death of Miss Elisabeth Houghton, a member of the Museum's Board of Trustees and a lifelong champion of civic causes. She was one of the original members of the Board, having been appointed by President Nixon in 1971. On September 6, 1973, the Hirshhorn Museum and Sculpture Garden lost the invaluable collaboration of Mr. Douglas MacAgy, who supervised the preliminary design of our inaugural exhibition. Mr. MacAgy's contribution was outstanding and his previous experience with the National Endowment for the Arts was of great help in our initial planning.

The Hirshhorn Museum and Sculpture Garden has been most successful in recruiting qualified and outstanding personnel in the professional field to fill new positions, and to replace those who have left our ranks: The Board of Trustees, at their April 4, 1974, meeting, voted to appoint Miss Anne d'Harnoncourt to the Board for a term expiring in 1980. At this meeting the Honorable Daniel P. Moynihan was reelected Chairman, and Dr. George Heard Hamilton was reelected Vice Chairman.

The Hirshhorn Museum and Sculpture Garden staff was augmented by the following appointments: Stephen E. Weil, Deputy Director; Charles W. Millard, Chief Curator; Charles Froom, Installation Designer; Edward Lawson, Chief, Education Program; Mary Ann Tighe, Education Specialist; and Douglas Robinson, Registrar.

"Inside the Hirshhorn Museum and Sculpture Garden," a special series of lectures on the Museum and its collections began on January 21, 1974, with a talk by the Director on "Joseph H. Hirshhorn, Collector." This series, begun at the request of the Resident Associates program, had an enrollment of thirty-eight subscribers. Its nine lectures included a talk on the installation of the Inaugural Exhibition by Charles Froom, Installation Designer, and Cynthia McCabe discussing the content of the opening exhibition. Other talks included



*Choir Girls* by William Edmondson. Limestone, 14 x 17 x 6 inches.  
Hirshhorn Museum and Sculpture Garden, S68.29.

"A Tour of the Museum and Sculpture Garden" by Cynthia McCabe and Edward Lawson; "Thomas Eakins and the Painting of Late 19th-Century America" by Phyllis Rosenzweig; "Pioneers of Modern American Art" by Inez Garson; "Aspects of 20th-Century Sculpture" by the Director; "The New York School: Pollock, Rothko, and de Kooning" by Edward Lawson; and "Op, Pop, and Other Recent Trends" by Mary Ann Tighe.

The Museum continued to respond to requests and inquiries from scholars and researchers and maintained its policy of lending outstanding works of art to national and international exhibitions. More than 235 requests for research information were answered by the Department of Painting and Sculpture. Fifty paintings and sculptures were loaned to 25 museums, galleries, and institutions.

The Alberto Giacometti Retrospective at the Solomon R. Guggenheim Museum, New York, from April 5 to June 23, 1974, included the sculpture "Seated Women" from the Hirshhorn Museum Collections. Other artists whose works have been borrowed for exhibitions in Spring 1974 are: Karl Knaths (International Exhibitions Foundation, Washington, D.C., tour); Zoltan Kemeny (Foundation Maeght, Paris); Horace Pippin (Delaware Art Museum, Wilmington); Jacob Lawrence (Whitney Museum of American Art, New York, and tour); and Mark Tobey (National Collection of Fine Arts, Smithsonian Institution, Washington, D.C.).

Among recent volumes which reproduced paintings and sculpture from the Collections are: *American Masters: The Voice and the Myth* by Brian O'Doherty (New York, Random House), *Elie Nadelman* by Lincoln Kirstein (New York, Eakins Press), *Grandma Moses* by Otto Kallir (New York, Harry N. Abrams), and *Henry Moore in America* by Henry J. Seldis (New York, Praeger).

Formal training sessions for 75 volunteer docents were begun by the HMSG Education Department on January 15, 1974, to continue thru May 28, to be followed by an intensive training period in the Museum galleries. The training course is made up of slide lectures and demonstrations, and will involve extensive work in the galleries with the paintings and sculpture.

The Hirshhorn Museum and Sculpture Garden's Board of Trustees is made up of the following members:

Daniel P. Moynihan, <i>Chairman</i>	Theodore E. Cummings
George Heard Hamilton, <i>Vice Chairman</i>	Anne d'Harnoncourt
H. Harvard Arnason	Taft B. Schreiber
Leigh B. Block	Hal B. Wallis
Chief Justice of the United States Warren E. Burger, <i>ex officio</i>	
Secretary of the Smithsonian Institution S. Dillon Ripley, <i>ex officio</i>	

#### ADVISERS

Brian O'Doherty    William C. Seitz    Joshua C. Taylor



## *Joseph Henry Papers*

The research and editing for the second volume of *The Papers of Joseph Henry* are now very close to completion. The volume, documenting Henry's career from the end of 1832 through 1835, will introduce Henry to his new environment at Princeton, follow his activities as Professor of Natural Philosophy at the College of New Jersey, and detail the resumption of his electrical research, mainly on self-induction. One of the highlights of the volume will be an extensive run of documents from the first of three laboratory notebooks kept by Henry at Princeton and the Smithsonian, and now preserved in the Smithsonian Archives. The notebooks reflect the pace and style of Henry's daily research as well as the evolution of his scientific ideas over several decades. The documents in the second volume also portray the dramatic expansion of Henry's scientific role and associations during his early Princeton years, while shedding new light on scientific centers like Philadelphia.

While the regular collecting and research activities of the project go on, preparations are now being made for seeing the second volume through the Smithsonian Press and for the editing of volume three of our series, documenting, among other events in Henry's life, his 1837 trip to Europe. His diary from that journey, marking Henry's formal introduction to the international science scene, provides an extraordinary record of transatlantic communication in science. Plans are also underway for the editing of a special volume of lectures and essays by Joseph Henry, based upon manuscripts from throughout his career. It is hoped that this special volume, treating topics such as Henry's philosophy of science, will appeal to a wide audience, both scholarly and popular, and will perhaps be found suitable for classroom use at the college and graduate levels.

Significant progress was also made in organizing and cataloguing the Joseph Henry Library, Henry's personal reference collection. A wide-ranging collection with numerous rare volumes, the Library is an invaluable resource for appreciating Henry's scientific development and scientific literature of the day. Plans are now going forward to publish an annotated catalogue of the collection for the general use of historians.

The project continues to sponsor and participate in various Smith-

sonian educational activities. Visiting scholars continued to exploit the Henry Papers' collections and resources. Nathan Reingold's seminar on the nineteenth century had another successful year.

### *National Armed Forces Museum Advisory Board*

With the approval of the National Armed Forces Museum Advisory Board, the Smithsonian Institution entered into a cooperative agreement with the Department of the Interior. The agreement provides a basis upon which the Smithsonian may fulfill its responsibilities under the Act of August 30, 1961 (75 Stat. 414, 20 USC 80-80d). Under the agreement the two agencies may work jointly in advancing outdoor museum programs, short term and long term, to illuminate historical American attitudes toward matters of national defense and past contributions by the Armed Forces to American society and culture.

Representatives of the National Park Service and the staff of the National Armed Forces Museum Advisory Board pursued planning for a special Bicentennial program to dramatize the spirit of the American people in the struggle for independence. The program is to be presented to the public at Washington, D. C., during the summer of 1976. It will portray the life of the citizen-soldier of the American Revolution through the medium of living history. The program will take place out of doors.

The National Armed Forces Museum Advisory Board at the close of fiscal year 1974 consisted of the following members.

The Honorable John Nicholas Brown, Chairman  
The Honorable Earl Warren  
Secretary of Army  
Secretary of Navy  
Secretary of Air Force  
Lieutenant General Milton G. Baker, Retired  
Robert C. Baker  
The Honorable Alexander P. Butterfield  
William H. Perkins, Jr.  
Secretary of Defense, ex officio  
Secretary, Smithsonian Institution, ex officio

## *National Collection of Fine Arts*

All of the activity of the National Collection of Fine Arts (NCFA) is directed toward educational goals — if enjoyment and appreciation can be included with the pursuit and refinement of knowledge as part of artistic education. Although some 1556 paintings, sculptures, and graphic works were added to the Collection this year (the Collection now numbers about 17,000), and study continues to refine the computerized listings and to improve accessibility, collecting is only one aspect of a complex program. Since the museum believes that the circumstances under which a work of art is encountered has much to do with an awareness of its qualities, great effort has been made to present each of the over 900 works from the collection now on display to its best advantage for the modern viewer. This has required, in addition to a continuing conservation and reframing program, the careful design of each area to create not a synthetic historical past but a convincing artistic present. This year the totally reorganized Lincoln Gallery was reopened, the Doris M. Magowan Gallery of Portrait Miniatures was completed, and a new gallery was established for some of the museum's other-than-American works, including a fine Rubens and a recently identified Guercino.

Including the Renwick Gallery, about 78,000 square feet of gallery space is now open to the public. Part of that space is reserved for temporary exhibitions which carry out the NCFA's concern for the reexamination of little-known aspects of American art as well as occasional tribute to acknowledged masters. Of the 21 exhibitions planned and produced by the staff this year (in all, 25 were presented) some were studies of individual artists ranging from the less well known including Margarite Zorach and Herman Webster to the distinguished ceramists Gertrude and Otto Natzler and the eminent painter Mark Tobey. Especially popular was an exhibition of drawings on Smithsonian letterhead made by Saul Steinberg while in residence at the Smithsonian in 1967. Investigating special themes were such exhibitions as "A Measure of Beauty," "Shaker," and "Art of the Pacific Northwest from the 1930s to the Present." As one in a series calling attention to artistic quality in works from other Smithsonian Collections, "Boxes and Bowls" was mounted at the Renwick Gallery, affording a new look at historical works from several Northwest Coast Indian groups. Publications, either major





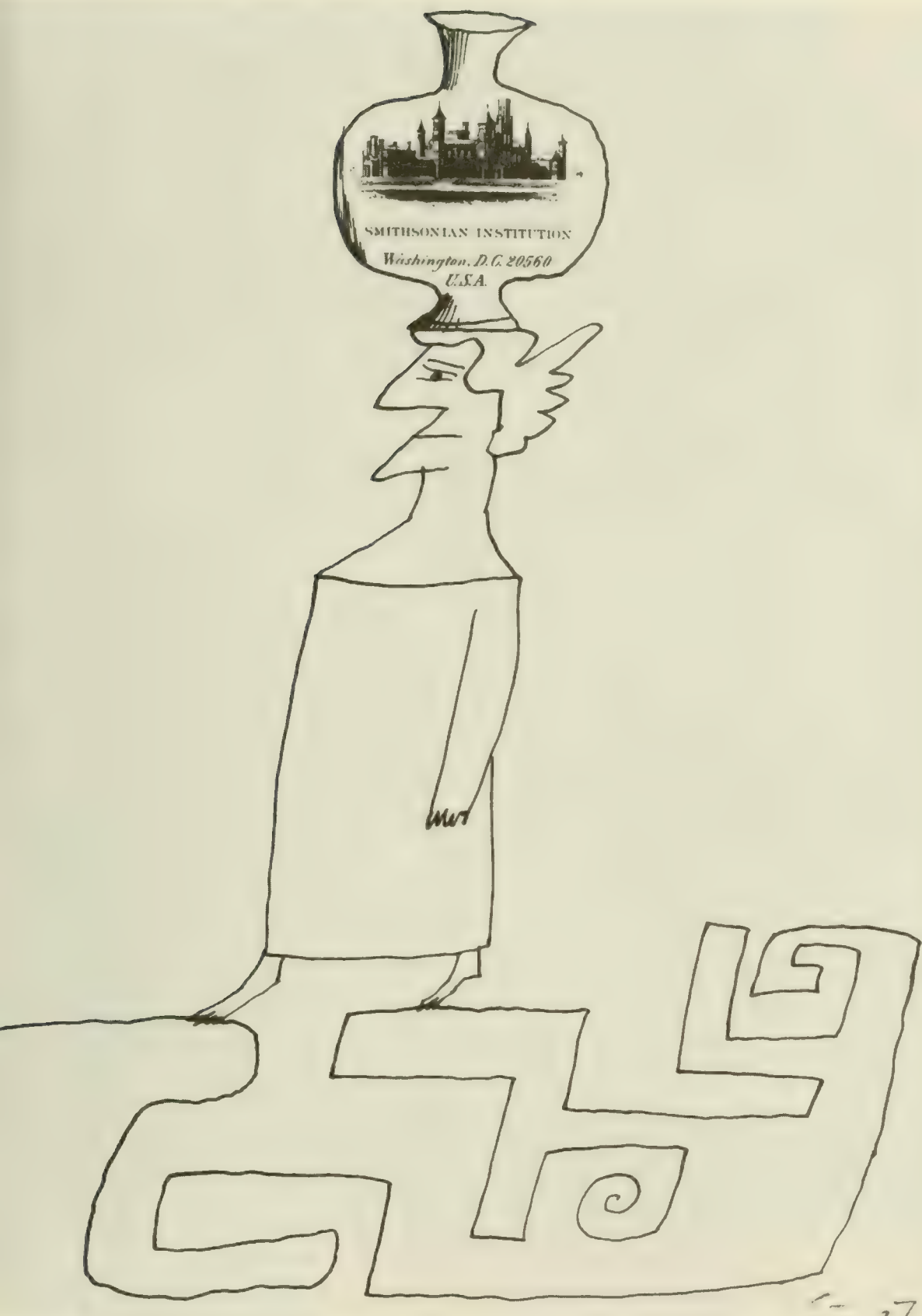
After having been closed for four years because of excavations for the subway, the National Collection of Fine Arts' remodeled main entrance at Eighth and G Streets is now open. (Photograph by Lowell A. Kenyon)

Installation of statues of Peter Paul Rubens and Esteban Murillo in second floor niches on the outside of the Renwick Gallery completes restoration of that building. The sculptures duplicate originals by Moses Ezekiel that occupied the niches in the late nineteenth century. Professor Renato Luccheti made these copies by casting the originals which are now at the Norfolk Botanical Gardens.





*Card Rack*, by John Frederick Peto (1854-1907). Oil on canvas.  
Gift of Nathaly Baum in memory of Harry Baum.



A drawing made by Saul Steinberg at the Smithsonian in 1967.



monographs or smaller catalogues, were issued in association with almost all exhibitions.

Exhibitions from abroad shown at the Renwick Gallery included paintings from Pakistan and a retrospective of two hundred years of Royal Copenhagen porcelain. Ten exhibitions provided by the National Collection were in circulation to other countries during the year, among them "Made in Chicago" (works by Chicago artists) which traveled through South America and "Fabric Vibrations," an exhibition originating at the Museum of Contemporary Crafts, which circulated in Southeast Asia, carrying the modern craft of tie dye to its ancient home.

The many established activities for making the museum accessible to a wide public continued with an expanded Department of Education. Young visitors expressed pleasure with the new children's gallery, "Explore." Students continued with the Discover Graphics program and a group of high-school-age "junior interns" enlivened many activities of the museum. Education of a different kind was carried on by six doctoral fellows and two senior fellows engaged in research on American art. To such scholars, NCFA's rapidly expanding Bicentennial Inventory of American Painting before 1914 will be of great help when ready for use in 1976. The National Collection of Fine Arts joined with the University of Delaware in the spring to organize a symposium on late nineteenth-century American art. Throughout the museum during the year were university students learning the various processes of museum operation as interns, helping to keep the entire staff aware that learning and teaching go hand in hand.

Members of the National Collection of Fine Arts Commission are:

H. Page Cross, <i>Chairman</i>	David Lloyd Kreeger
George B. Tatum, <i>Vice Chairman</i>	Abram Lerner, <i>ex officio</i>
S. Dillon Ripley, <i>Secretary</i>	Henry P. McIlhenny
Mrs. Elizabeth Brook Blake	Ogden M. Pleissner
Thomas S. Buechner	Harold Rosenberg
David E. Finley	Charles H. Sawyer
Lloyd Goodrich	Mrs. Otto L. Spaeth
Martin Friedman	Otto Wittman
Walker Hancock	HONORARY MEMBERS
Barlett H. Hayes, Jr.	Alexander Wetmore
August Heckscher	Paul Mellon
Thomas C. Howe	Stow Wengenroth
Mrs. Jaquelin H. Hume	Andrew Wyeth



Improvisational dance led by a Docent at the National Collection of Fine Arts.



## *National Museum of History and Technology*

On January 23, 1974, the National Museum of History and Technology entered its second decade. Marking its tenth anniversary, Chief Justice and Smithsonian Chancellor Warren Burger with Secretary Ripley named the Museum's auditorium in memory of Leonard Carmichael, the Secretary whose vision and determination had brought about the planning, approval, and construction of this Museum. At the Museum's dedication 10 years earlier, President Lyndon Johnson had expressed his belief that "this Museum will do that which causes us all to celebrate; it will excite a thirst for knowledge among all people." Since its founding, the National Museum of History and Technology has welcomed nearly 55 million visitors. Yearly attendance has grown steadily, now reaching 7 million per year. Last April, visitor attendance topped the million mark, making the highest monthly attendance ever registered in a Smithsonian building. Attendance is expected to be vastly increased during our second decade as the Nation carries out its Bicentennial celebrations.

On the first of October 1973, Dr. Daniel J. Boorstin moved from the directorship of the Museum to the post of Senior Historian in the National Museum of History and Technology, a position which allows him to devote more of his energies to research and writing. In May 1974, Dr. Boorstin received the Pulitzer Prize for History for *The Americans: The Democratic Experience*, the final volume in his trilogy on the American people. The writing of this volume had been completed during the four years of his directorship.

Dr. Boorstin's successor, Professor Brooke Hindle, was appointed after nomination by museum curators and began his tenure in February. A faculty member of the New York University since 1950, his two most recent posts have been as Dean of the University College of Arts and Science and Head of the University Department of History. Known for his distinctive works, *The Pursuit of Science in Revolutionary America 1735-1785*; *David Rittenhouse: A Biography*; and *Technology in America: Needs and Opportunities*, Dr. Hindle is presently editing a volume which summarizes the conference he planned for Sleepy Hollow Restorations on "America's Wooden Age." His present research assesses the role of industrial fairs in advancing the technology of their time. His particular focus has been the Centennial Exposition of 1876 — from which the





Mrs. Nancy Kissinger (center) on a recent visit to the National Museum of History and Technology with the wives of the foreign ministers from Latin America is shown a collection of yellow-glazed English Earthenware by Paul V. Gardner, Curator, Division of Ceramics and Glass.

Oiling and cleaning of the machinery in the Power and Tool Halls is an important phase of the daily routine before volunteers operate equipment for their lectures and demonstrations. Marjorie Miller, a National Museum of History and Technology Docent volunteer is one of several skilled in this challenging task, which always brings an interested audience.



Smithsonian Institution drew its first significant holdings of machinery and technological artifacts, now housed in this Museum.

Several series of public lectures were continued from last year with considerable success as an important form of contact with the visiting public and outreach to the Washington community. The National Museum of History and Technology in its second series of Frank Nelson Doubleday Lectures considered "Creativity and Collaboration," looking at the special opportunities and pressures of our age to collaborate, and asking how particular collaborations — in industry, scientific research, the media, city planning, and government — had affected creativity and brought about growth and change. Speakers were Japanese industrialist Akio Morita, President and co-founder of Sony Corporation; Nobel Prize-winning biologist James Dewey Watson, whose collaboration with Francis Crick resulting in an understanding of DNA was heralded as one of the most dramatic research breakthroughs of modern times; British Broadcasting Corporation's Managing Director of Television Huw Wheldon; Israeli-born Canadian architect Moshe Safdie, designer of Habitat; and Secretary of Health, Education, and Welfare Caspar W. Weinberger. Each lecturer also took part in a luncheon seminar, allowing for an open exchange of ideas among curators, the lecturer, and special guests. Doubleday and Company has renewed its grant for a third year of lectures in "The Frontiers of Knowledge" series.

The Museum also continued a series of lectures with the U.S. Postal Service relating to new postage stamp issues. Extremely popular lectures included "The Continental Congresses" and "Rise of the Spirit of Independence." First Day ceremonies were held for the block of eight 10-cent stamps commemorating the Universal Postal Union Centennial.

In addition to these evening lectures, the Museum has provided, since last January, weekly daytime Museum Talks by curators and qualified museum aides, technicians, and specialists. When moved from Saturdays to Tuesdays at lunchtime, these slide talks have drawn large audiences both of Museum visitors, neighboring government employees, and Museum staff. The lectures reflect both the Museum's varied collections and current staff research projects. Some of the most exciting presentations have included demonstrations of historic objects from our collections, from the early sound-amplifying devices of inventor Elisha Gray, a contemporary of



Alexander Graham Bell, to the operation of the common printing press.

The primary efforts of all staff during the past year have been spent in readying the National Museum of History and Technology's five major exhibitions for the Bicentennial period. The first, opening this coming September 20th on the lower level, is an exhibition on the two-hundred-year history of American clothing. "Suiting Everyone," the story of America's transition from homespun or tailor-made garments to ready-to-wear, is an interdisciplinary exhibit, bringing together the Division of Costume and Furnishings, whose costume collection was greatly enriched by a massive clothing appeal this year; the Division of Textiles, which offers the machines and textiles of manufacture; and the Division of Military History, which has supplied examples of early mass-produced clothing — soldiers' uniforms. A major new installment of the National Museum of History and Technology's political history wing is scheduled for opening the middle of next year. The theme of "A Nation of Nations," pluralism in American life, is particularly suited to this Museum, which has become the repository for many thousands of artifacts which were family heirlooms, treasured possessions, and creations of American people of every ethnic, racial, and religious origin.

Considerable staff attention was directed to restoration work on the exhibition "1876 — A Centennial," an exciting project which will transform a portion of the Arts and Industries Building into a microcosm of the Philadelphia Exposition of 1876 capturing the festive and optimistic spirit of America on its one-hundredth birthday. This exhibit will manifest the exuberance of a Victorian extravaganza, an atmosphere of organized chaos, with all spaces dominated by an enormous variety of material objects. Finally, Vladimir and Elvira Clain-Stefanelli, Curators of the Division of Numismatics, are preparing a special exhibition on the history of American banks and banking, supported by the American Bankers Association, to open in September of 1975.

This year the Dwight D. Eisenhower Institute for Historical Research, a study and conference center which will make important contributions to national study and evaluation of the Armed Forces, their importance in war and in maintaining peace, was brought to full realization with the appointment of Dr. Forrest C. Pogue, Direc-



tor of the George C. Marshall Research Library in Lexington, Virginia, and widely known biographer of George Marshall, to the directorship of the new Institute.

As part of the Institution's overall decentralization program, the National Museum of History and Technology assumed the administration of its own Office of Exhibits and Building Management Division. From the Smithsonian's decentralization of the Office of Primary and Secondary Education has come a new approach to the Museum's education responsibilities, which have been formalized in a new Division of Public Information and Education. In addition to conducting tours and developing visitor programs, the Office will establish a visitor center on the Museum's first floor to orient the visitor and answer public inquiries. This past year a staff associate was hired to adapt museum exhibits and activities to the needs of the handicapped. The staff associate, being herself handicapped, concentrated her efforts on developing tours for the blind and deaf with great success. Experiments were conducted with Braille labels and subtitled films, and the results will be incorporated into future exhibit planning. Alice Reno joined the staff in late spring as Supervisor of the Division.

And on a playful note, the National Museum of History and Technology displayed in each public restroom an exhibit panel tracing with graphics the history of "Bathrooms in America." It leaves visitors contemplating the chamber pot and closetstool of earlier days, with a sense of the full impact of technology on the American way of life.

Locating and collecting objects and memorabilia for Bicentennial exhibitions was by far the dominating activity of the Museum's staff this past year as progress continues simultaneously on four major subject exhibitions.

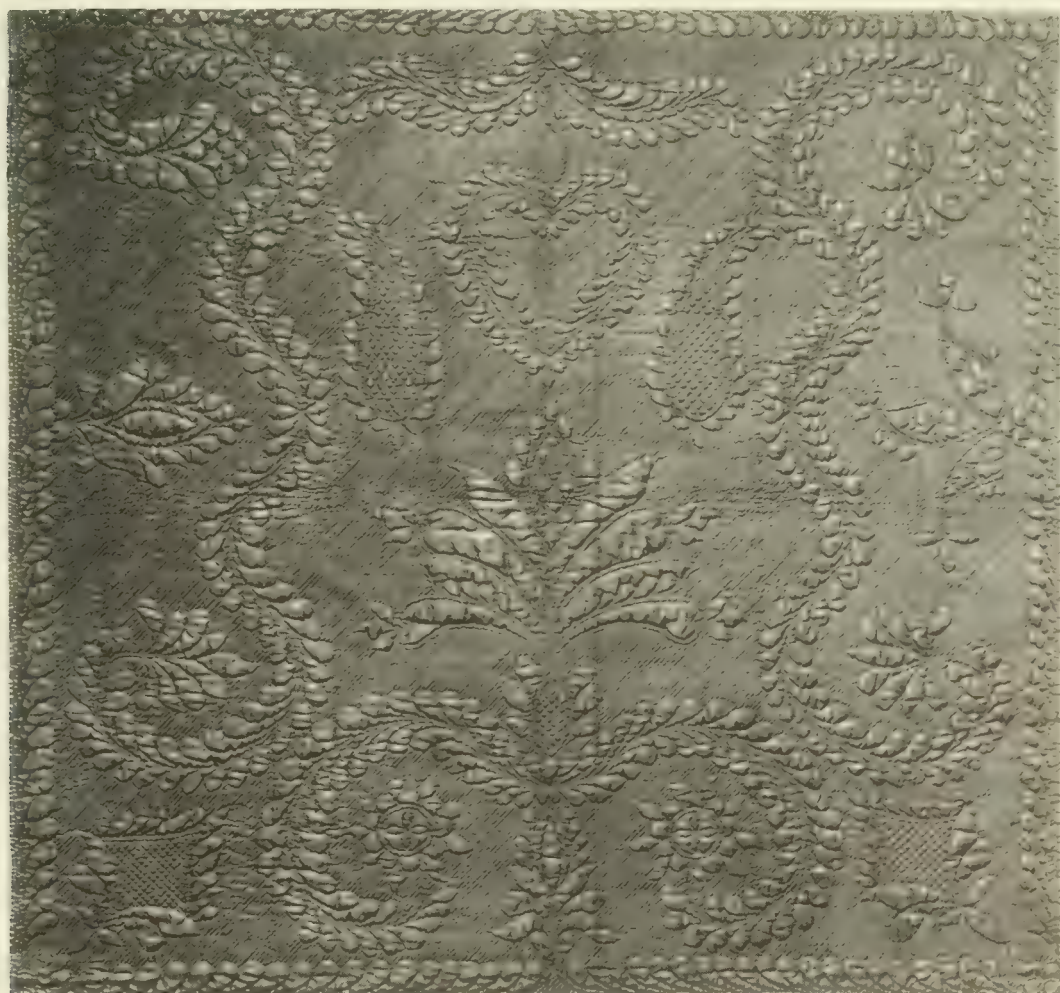
The Division of Costume and Furnishings initiated an unusual collecting effort for the exhibit, "Suiting Everyone," utilizing a news release and list of items needed for display. The response was overwhelming, resulting in the acquisition of a large number of items of clothing from 1920 to 1970 that ranged from representative clothing worn by the majority of Americans to examples produced by the industry's greatest designers.

The preparation of the exhibition has benefited enormously from the valuable assistance provided by a panel of advisors from the



Rearrangement of the reference collections of the Division of Textiles has resulted in more adequate storage of the Division's extensive collections of quilts, samplers, and rugs, making them more accessible to the staff and visiting students and scholars.

Indigo blue glazed wool quilted counterpane made by Esther Wheat of Conway, Massachusetts, for her dower chest. Late eighteenth century. Division of Textiles, National Museum of History and Technology.





fashion community. Given the incredible breadth of the Smithsonian collections and the interdisciplinary perspective gained from the participating Museum staff, the exhibit promises to have a profound impact on the future study of American clothing and its industry.

The full staff of the Division of Political History devoted its major effort to the forthcoming exhibition hall to be entitled "We, the People." They have been engrossed in the challenging task of selecting and acquiring objects illustrating the role of American government in the lives of the American people. Objects have been collected from resources within the Museum as well as from other Smithsonian and Federal agencies. Conservation of the First Ladies' Gowns also continued, bringing the total number of First Lady patterns now completed to twenty. In cooperation with the Division of Textiles, the skirt of the dress of Martha Washington was restored as the first project in a long-term program for the conservation and restoration of the First Ladies' Gowns. As part of this program, Barbara Coffee, Museum Specialist in this Division, received a grant from the Secretary's fund to explore costume preservation and restoration being done in museums in England, The Netherlands, and in Sweden.

The new Henry R. Luce Hall of News Reporting continued to draw enthusiastic crowds, and plans are now underway by the Smithsonian to produce a film and a traveling exhibit based on the Hall. Two exhibitions have been shown in the Hall's Print Gallery: "Prang's American Chromos," showing the step-by-step production of a twenty-six color lithograph; and "Anatomy of a Gallop," a comparison between the lithographs by Currier and Ives of racing horses and the contemporary photographs by Muybridge of the same subject.

The Division of Medical Sciences devoted considerable effort to the preparation of the exhibit "Triumph Over Disability" in the Hall of Health. The exhibit was made possible by a grant from the American Congress of Rehabilitation Medicine. Each Friday, films and lectures on the subject are offered in the Leonard Carmichael Auditorium.

Several major exhibits were closed and dismantled this past year in preparation for Bicentennial activities. This necessitated the removal and temporary storage of thousands of valuable objects, a project that required the involvement of more than half the Mu-





An important acquisition by the Division of Political History, National Museum of History and Technology, this past year was a fine watercolor portrait of Benjamin Franklin by Rembrandt Peale.

seum's divisions and staff. The "Growth of the United States," "Art and Spirit of a People," "American Costume," and "Historic Americans" were among the halls closed, as well as the special exhibits "Music Machines" and "A Children's World."

Several large objects were removed to other more visible areas, including the relocation of the *John Bull* locomotive. Granite blocks, especially cut for the purpose, support pieces of the original rail used in 1831 under the engine.

The main focus of attention for "1876: A Centennial Exhibit" is upon the restoration of objects and cases of the period that will be utilized within the displays. The restoration and refurbishing of those objects that were displayed nearly one hundred years ago, for which a unique restoration task force has been organized within the Museum, are proceeding on a scale unprecedented in the history of the Institution.

Since that facet of the Centennial which had the largest public impact was the overwhelming array of machinery and power equipment, the Division of Mechanical and Civil Engineering has a primary involvement in it. Robert M. Vogel, Curator of Heavy Machinery and Civil Engineering, is co-curator in charge, and Edwin A. Battison, Curator of Light Machinery, has responsibility for the machine-tool exhibits.

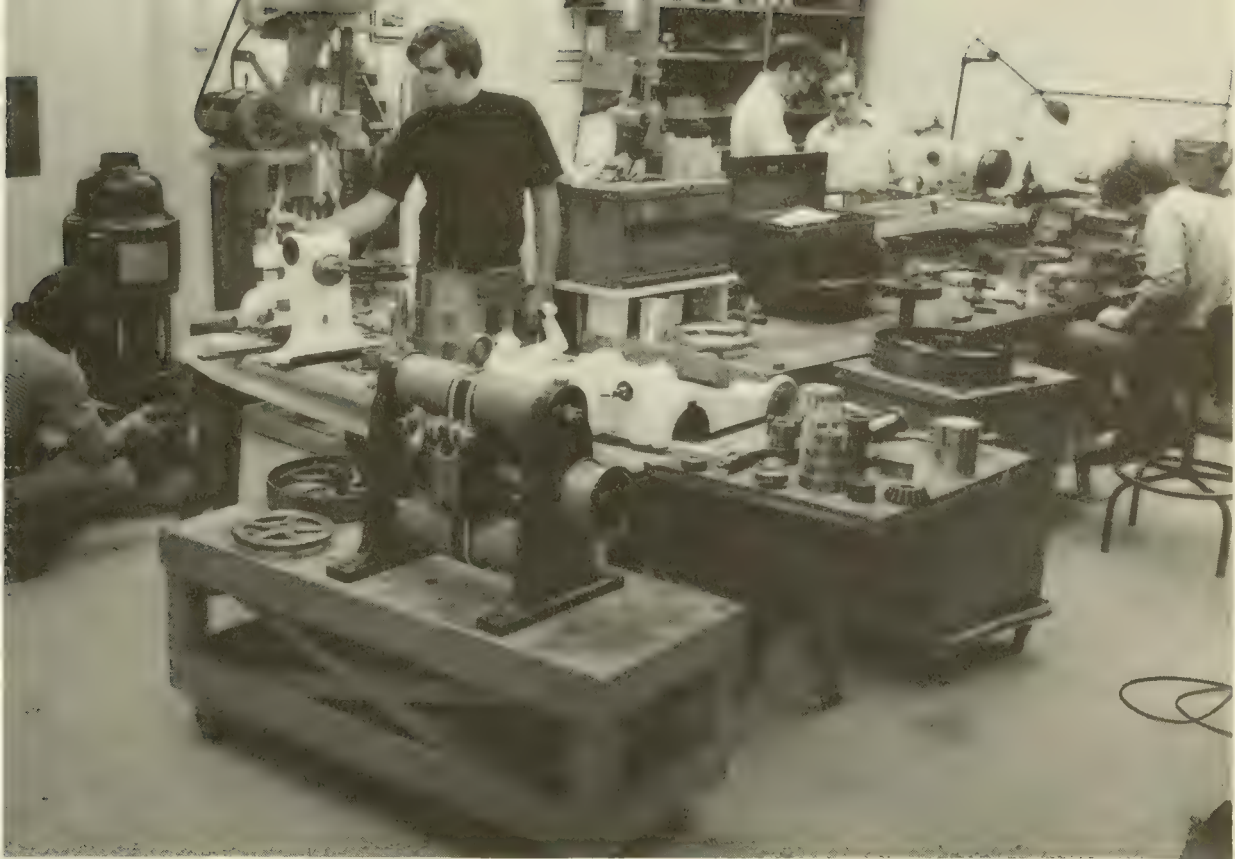
The practicality of the exhibition was founded primarily upon the vast collection of Centennial memorabilia carefully preserved and housed in many parts of the Institution. The machinery and models will form the nucleus of the exhibition, supplemented by other fine examples of the types exhibited at the Philadelphia Exposition.

For many months, members of the staff have traveled to record centers, archives, and libraries, conducting research, recording and photographing available documentary evidence in support of the present restoration. Factories and industrial firms on the verge of demolition have been contacted in an effort to locate furnishings and fittings so very vital to achieving the atmosphere of 1876.

Restoration of this equipment is being performed in three separate shops created for this purpose under the general supervision of William K. Henson, Supervisor of the Science and Technology Department's Technical Laboratory.

The main facility, headed by Museum Specialist Charles E. Denison, is responsible for the restoration of machinery such as ma-





Objects exhibited at the International Exhibition of 1876 held in Philadelphia are being restored to original appearance and condition in the Technical Laboratories of the National Museum of History and Technology, as part of the preparation for the Bicentennial exhibit.

Specialist at the National Museum of History and Technology Silver Hill restoration facility clean the colorful artwork uncovered during cleaning of a huge steam-powered refrigeration compressor for the Bicentennial exhibit "1876—A Centennial."





chine tools, fittings, and steam engines of sizes that can be accommodated in the basement shops of the Museum. Here, objects are first disassembled, marked, chemically cleaned, and restored to original condition with close adherence to all available published references and illustrations. All broken parts are repaired, and missing parts are duplicated to permit each object to not only look but perform as new.

Machines and tools too large and cumbersome for the in-house shop are restored at a newly created second facility at Silver Hill under the supervision of Museum Technician William T. Tearman.

A shop on the fifth floor of the National Museum of History and Technology serves as the third restoration facility for relatively small objects, at present principally a selection of the hundreds of patent models exhibited at the Philadelphia Fair, and the cutting and sewing of small intricate sails for many of the ship models.

One of the most interesting phases of the work that has spread excitement throughout the entire staff has been that concerned with the stripping of layers of decorative paint and the detective work necessary to repaint and decorate the finished items. An example is the Linde-Wolk steam engine recently acquired by the Institution from the American Brewery in Baltimore, Maryland. When the Technical Laboratory personnel commenced their routine documentation of the colors and designs applied to the engine over the years — stripping away each successive coat of paint, taking record photographs, and tracing the decorative patterns—they discovered among its dozen discrete layers of paint an intricate panorama of delicately shaded flowers and exquisite filigrees. While the notion of such painstaking art work on a huge industrial engine may now seem anomalous, in an earlier era it clearly was considered a proper adjunct. When completed, the engine will be repainted and decorated as it was many years ago.

To assist with the unprecedented workload imposed by the restoration program for "1876," six additions were made to the crew; each new man boasts some specialized aptitude or skill essential to the successful consummation of the program. Among other individual projects are the refurbishment of a 42-foot span from a Howe truss bridge and a group of components salvaged from the Girard Avenue Bridge in Philadelphia — a bridge built at the time of the Centennial and dismantled a few years ago.

Research and work on furnishings and other phases of the exhibition are proceeding under the direction of Cultural History Curator Rodris Roth and Museum Technician Susan Myers. William Miner of the Office of Exhibits is overall coordinator of the project.

Highlighting the activities of the Division of Musical Instruments was a program produced for the Renwick Gallery entitled "American Music and Ballroom Dance, 1840-1860," utilizing wind instruments and a Chickering piano of the period. Cynthia Hoover, James Weaver, and Robert Sheldon edited the music. Restoration projects completed included the production of measured drawings for the 1760 Stehlin harpsichord, preparation of wind instruments for the "American Music" performance, and work on a 1794 Broadwood grand piano. Thomas Wolf, keyboard instrument maker, joined the staff as the first participant in a two-year program for training of conservators of musical instruments, a service offered for the first time by the Institution and the only program of its kind in the country.

The Division of Numismatics was joint host, with the American Numismatic Society, of the 1973 International Numismatic Congress which met for the first time in the United States in September 1973. Opening in New York City, the Congress moved to Washington, where numerous papers were presented in the Museum to an attendance of 329 numismatists and guests representing 32 countries. A special exhibition of medals commemorating the battles of the American Revolution was produced by the Division with an interpretative publication. A derivative of the Congress was a three-volume *Survey of Numismatic Research*, of which Mrs. Elvira Clain-Stefanelli was the editor of the section on medals.

In November, the Division of Naval History co-sponsored the American Meeting of the Society for the History of Discoveries in concert with the Library of Congress and the U.S. National Archives. Featured were sessions on the exploration of the Americas and on cartographic resources from the era of the American Revolution.

On May 30, the Secretary presented to Dr. Vladimir Clain-Stefanelli and to Mrs. Elvira Clain-Stefanelli the Exceptional Service Gold Medal Award "in recognition of the successful acquisition and display of the Josiah K. Lilly Collection of gold coins and their many other achievements and accomplishments in the numismatic world and for their tireless devotion to the development of one of the



world's finest numismatic collections." In September, Dr. and Mrs. Clain-Stefanelli were awarded the 1973 Leonard Forrer Medal by the International Association of Professional Numismatists "for their work for the increase and diffusion of knowledge in the field of numismatics."

Peter C. Marzio, Associate Curator of the Division of Graphic Arts, received a Fulbright Research Grant which enabled him to study nineteenth-century American artists in Rome during most of the past year. Bernard S. Finn, Curator of Electricity, spent a sabbatical leave in London where he helped prepare a special exhibition and booklet on submarine telegraphy at The Science Museum, entitled "Leave It to the Mermaids," in which technical developments were placed in their social context. The exhibit included objects from a number of museums, the Smithsonian Institution, corporations and individuals in the United States as well as in Great Britain. Jon B. Eklund, Curator of Chemistry, was on a year's leave of absence, during which he was Visiting Professor of Chemistry at the New York Historical Association at Cooperstown.

Another recipient of an award was Harold D. Langley, Curator of Naval History, who received a research grant for work in the collections of the American Antiquarian Society on early American flags and newspaper sources for American reaction to the Peace of Ghent in 1815. Robert M. Vogel, Curator of Mechanical and Civil Engineering, conducted a week-long seminar at Cooperstown dealing with the techniques of field recording, photography, map interpretation, and site analysis relating to historic and industrial archeology. He also assisted in organizing a symposium celebrating the 250th Anniversary of the Carpenters' Company of Philadelphia, "Building Early America," presenting a paper on materials handling and steam excavation. Senior Scientific Scholar Robert P. Multhaupt also participated in the conference as well as in a colloquium at the Burndy Library in Connecticut on the relationship between science and technology.

In December 1973, William Seale joined the staff as Curator in the Division of Ethnic and Western Cultural History. His fields of activity include the history of American architecture and the material culture of the south-central and southeastern United States during the nineteenth and twentieth centuries. He was co-author of a survey of the state capitol buildings of the United States. During the year, three new chairmen were appointed to the Museum's depart-





ments: Dr. Vladimir Clain-Stefanelli became Chairman of the Department of Applied Arts; John T. Schlebecker, Jr., was designated Chairman of the Department of Industries; and Richard E. Ahlborn became Acting Chairman of the Department of Cultural History. Another staff appointment was that of Donald H. Berkebile, who was promoted to the position of Assistant Curator in the Division of Transportation.

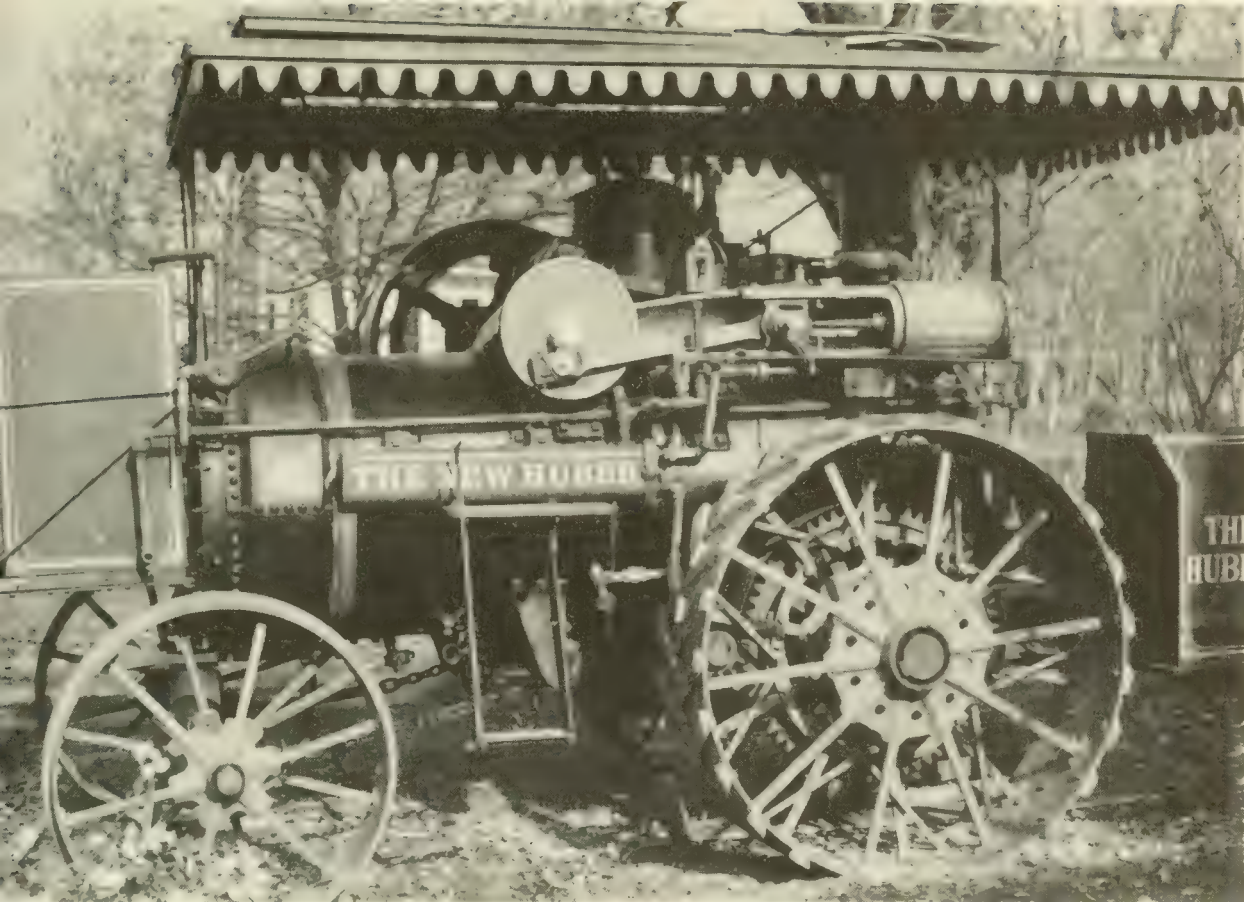
Sami K. Hamarneh, specialist in medieval Arabic medicine and pharmacy, lectured on a variety of subjects in India, Pakistan, and Japan. Hamarneh also visited museums throughout the northeastern United States and participated in the annual meeting of the American Institute of the History of Pharmacy. During April and May 1974, he visited Jordan and participated in a conference at the University of Jordan. Later, he visited Cairo, where he completed research on his book, *The Physician, Therapist and Surgeon Ibn al-Quff*, which has since been published in Cairo.

Cooperation with organizations concerned with preservation and history continued this year, with the Division of Mechanical and Civil Engineering as corporate and editorial headquarters of the Society for Industrial Archeology. Curator Robert M. Vogel serves as editor of the *Newsletter*, the only international publication in the field. John H. White, Jr., Curator of Transportation, is editor of the semiannual *Railroad History*; and John T. Schlebecker, Jr., Curator of Agriculture, and G. Terry Sharrer, Curator of Manufacturing, jointly edit the quarterly *Living Historical Farms Bulletin*. Robert P. Multhauf continues as editor of *ISIS* and as advisory editor for the *Dictionary of Scientific Biography* and the *Dictionary of American History*. He was recently appointed a member of the Historical Advisory Committee of NASA.

The collections were enriched with a variety of objects ranging in size from a 1926 Huber steam traction engine to an extremely rare case bottle dated 1788 made at the Amelung Glass Factory of Frederick, Maryland. An interesting collection of over 200 millstones dating from 1748 to 1920 was acquired, including stones for grinding materials ranging from grain to paint pigments. Collectively, they represent an industry that no longer exists except as a historical curiosity.

The robe worn by Chief Justice John Jay and the Senate chair used by Henry Clay became part of the collections of the Division





1926 Huber Steam Traction Engine. Division of Agriculture and Mining, National Museum of History and Technology. This late model steamer, distinguished by its return flue boiler, was added to the Museum's holdings of full-size original farm machines, completing the collection of major tractor types in the United States.

Renovation of exhibit space for Bicentennial exhibits required the relocation of a number of national treasures, such as the John Bull locomotive.





of Political History, together with several hundred political campaign objects presented by Ralph E. Becker. A large and important collection of early photographic materials relating to the scientific investigations of Professor John W. Draper, one of the first American researchers to use photography as an investigative tool in scientific investigations, was also acquired.

A particularly valuable document, the original payroll of the Continental gondola *Philadelphia*, was received through the generosity of the Trustees of the Fort Concho Museum at San Angelo, Texas. This provides a new and human dimension to the history of this national treasure. Also received was a specialized group of East Asian paper currencies containing several thousand Chinese notes. Combined with the Oriental coins already owned by the Division of Numismatics, these materials form one of the most important reference collections for the student of Oriental monetary history.

Among other significant items received were a rare eighteenth-century indigo blue glazed wool counterpane and a number of horse-drawn vehicles required to complete portions of the transportation collection, including a 1900 truck, an 1890 laundry wagon, a 1929 Cunningham touring car, and two horse-drawn cotton pickers. A fine collection of scales and balances was received from the City of Baltimore, together with instruments from the National Weather Service.

Baseball and archery collections, which were acquired this past year, have developed a relatively new area of collection activity.



Daguerreotype copy by Professor J. W. Draper from an original he made about 1840. The original is one of the earliest photographic portraits made in America. Division of Political History, National Museum of History and Technology.

## *National Portrait Gallery*

The year began with the opening on the Fourth of July of a major exhibition entitled "The Black Presence in the Era of the American Revolution, 1770-1800," which consisted of more than 250 items: paintings, prints, broadsides and books, documents and letters, and three-dimensional objects. Professor Sidney Kaplan of the University of Massachusetts prepared both the exhibition and its catalogue, a 270-page volume containing 100 black and white illustrations and 8 in color, published for the National Portrait Gallery (NPG) by the New York Graphic Society in association with the Smithsonian Institution Press. Professor Kaplan, who took a year's leave of absence from his post at Amherst College to come to Washington, was the first of many scholars, experts in their fields, whom we hope to call upon in connection with special exhibitions and publications. "The Black Presence," like all the Gallery's major exhibitions, also was accompanied by an illustrated booklet and a teacher's guide, prepared especially for the secondary-school level. This publication, 72 pages in length and illustrated with 50 reproductions, was written by the Associate Curator of Education, Mrs. Lisa W. Strick.

A two-gallery exhibition, mounted to commemorate the 150th anniversary of the Monroe Doctrine on December 3, was organized by a member of the staff of the Catalog of American Portraits, Gerald Z. Levin, who also prepared its 128-page catalogue. The installations of this and "The Black Presence" exhibition were designed by Joseph Michael Carrigan, Chief of Exhibit Design and Production.

A small exhibition dealing with the presidential portraiture of Abraham Lincoln, centering on a full-length portrait of Lincoln by William F. Cogswell, lent by the White House, was prepared by two NPG interns, Richard Beard and Kenneth Yellis, who spent a year with us under a grant from the National Endowment for the Humanities. Beard and Yellis, who received their Master's Degrees in History from Emory University and the University of Rochester, respectively, were selected from nearly 100 candidates who applied for these internships designed to acquaint the recipients with various phases of work encountered in a history museum.

Several special portrait presentations also took place during the



*Cole Porter* by Soss Melik. National Portrait Gallery (NPG.74.32).



*Meriwether Lewis*, engraving by Saint Memin. One of 761 rare eighteenth- and nineteenth-century engraved portraits given by Paul Mellon to the National Portrait Gallery.





Bust of President Lyndon B. Johnson by Jimilu Mason. Mrs. Lyndon B. Johnson and Senator Hubert Humphrey spoke at the presentation ceremony.

year. The most notable of these was of a bust of President Lyndon B. Johnson by Jimilu Mason, an event at which Mrs. Johnson and Senator Hubert Humphrey spoke.

In the past twelve months, more than 33,000 adults and young people were served in the Gallery and in schoolrooms by our Education Department—an increase of 300 percent over last year.

The Historian's Office and the Curatorial Department were mainly involved in the preparation of the first two in a series of the Gallery's three Bicentennial exhibitions, "In the Minds and Hearts of the People: Prologue to the American Revolution, 1760-1774," and "The Dye is Now Cast, 1774-1776." The former, which opened on June 14, will be discussed in greater detail in next year's report.

That this was a banner year for the Gallery in terms of acquisitions to the permanent collection is evidenced by the addition of 817 portraits, 761 of which were engravings by Charles Balthazar Julien Fevret de Saint-Mémin. Presented by Paul Mellon, this collection represents the most munificent benefaction received by the National Portrait Gallery since its inception. Originally owned by Saint-Mémin himself, these portraits, executed between 1796 and 1814, constitute a remarkably diverse representation of major figures of the early Federal Republic, including Presidents Washington, Jefferson, and Madison; Paul Revere; Aaron Burr; Benjamin Rush; John Marshall; Charles Willson Peale; Stephen Decatur; Mother Seton; Meriwether Lewis; and William Clark. Another important gift was a portrait of Richard Henry Lee by Charles Willson Peale, presented by Duncan C. Lee and his son Gavin Dunbar Lee. Most notable among the year's acquisitions by purchase were the only known life portrait of the first Speaker of the House of Representatives Frederick Muhlenberg by Joseph Wright, Dolley Madison (at the age of 83) by William S. Elwell, a bust of Ralph Waldo Emerson by Daniel Chester French, a bronze relief of President Theodore Roosevelt executed from life in 1906 by Sally James Farnham, and a group of drawings by Soss Melik including likenesses of Sherwood Anderson, Cole Porter, and Thomas Wolfe.

The National Portrait Gallery Commission is composed of the following members:

John Nicholas Brown, *Chairman*  
Whitfield J. Bell, Jr.  
Ralph Ellison  
David E. Finley  
Wilmarth Sheldon Lewis  
Robert L. McNeil, Jr.  
Andrew Oliver  
Jules D. Prown  
E. P. Richardson  
Robert Hilton Smith  
Chief Justice of the United States, *ex officio*  
Secretary, Smithsonian Institution, *ex officio*  
Director, National Gallery of Art, *ex officio*

The Office of Academic Studies, under the direction of the Board of Academic Studies, conducts Smithsonian programs in higher education and research training. The foremost objective of the programs is to provide the framework within which each visiting student and investigator can confront individually the opportunities for the pursuit of knowledge represented in the Smithsonian's collections and its research and technical staff. In the arts, humanities, and sciences, students at all postsecondary levels study under the guidance of the Smithsonian's professional research faculty.

Predoctoral and postdoctoral fellows undertake research training in their specialties, bringing in their inquiries great intellectual stimulation and adding immeasurably to the vitality of the research climate. Predoctoral fellows generally consult Smithsonian resources necessary to their dissertations but not available at their universities. Postdoctoral fellows, usually recent recipients of the doctorate, seek advanced research training and the opportunity to expand studies begun at the university. During the academic year 1973-1974, 21 predoctoral and 24 postdoctoral fellowships were awarded to support these activities in most of the museums, laboratories, and field stations of the Institution.

Five students, in an earlier stage of graduate study than the predoctoral fellows, have received fellowships supported jointly by their home universities and the Smithsonian's National Air and Space Museum to study aspects of the social and technological impact of space exploration. Although pursuing degrees in different disciplines at different Washington-area universities, the students worked with each other as well as their Smithsonian advisor in the development of their individual projects.

Fellowship appointments for directed research are provided for two to three months to graduate and undergraduate students, to offer them new perspectives on the purposes of research and to provide them access to sources and materials not encountered by them in their university-based studies. Some students pursue interests previously developed, but many explore areas of knowledge wholly new. For example, a summer spent at the Smithsonian might allow a first-year graduate student to reflect on the full range of alternatives in his chosen field of knowledge, and to de-



fine his future graduate course of study based on a better understanding of what he finds both practical and interesting. During 1973-1974 such awards were made to 21 graduate and undergraduate students; 4 of the undergraduates were supported under a grant from the National Science Foundation.

Other students, often undergraduates, by preference undertake studies at the Smithsonian which provide broader exposure than research training. They are participants in a program for museum study, a program offering them a chance to learn in the working museum or laboratory or field environment rather than the traditional classroom atmosphere, to take part in the ongoing work of the Institution while pursuing a project that interests and challenges them. Most students in the program are awarded academic credit by their home universities, where the student's performance meets the educational standards set by the Smithsonian and the standards and requirements imposed by the university. During the past year, 13 participated in museum-study projects under the close supervision of Smithsonian staff members.

In other undergraduate programs, two members of the Smithsonian staff taught regular courses in their specialties in the University of Maryland's program in the history of science and technology.

Seeking other ways to encourage the interchange of ideas and the exchange of information, Academic Studies supports visitors to the Institution for very brief periods of study, research, and consultation with the staff. The range of purposes and levels of accomplishment of these visitors reflect the diversity of the Smithsonian itself, for they may be graduate students or distinguished senior scholars and scientists, from the United States or abroad, and their interests lead them to all areas of the Smithsonian. They come here for their individual purposes, as short-term visitors, or as participants in specialized seminars. This year support was provided for 32 short-term visitors, and for one seminar, conducted by Dr. William Fitzhugh of the Smithsonian's Department of Anthropology, on the topic of the Maritime and Moorehead Archaic cultures of northeastern North America.

## *Office of American Studies*

The Office of American Studies conducts a formal graduate program in material culture of the United States which is directed to the original Smithsonian purpose: "the increase and diffusion of knowledge." Graduate students from area universities participated in the program, gaining academic credit toward advanced degrees at those universities.

The course in "Material Aspects of American Civilization" was taught by Dr. Washburn (with the assistance of curators and others inside and outside the Smithsonian). A seminar in Museum Visitor Behavior was conducted by Robert A. Lakota and the staff of the Psychological and Sociological Studies Program of the Office of Museum Programs. A seminar in the decorative arts was conducted by Patrick Butler III, Honorary Smithsonian Research Associate. Arthur C. Townsend, Executive Secretary, Maryland Historical Trust and Honorary Smithsonian Research Associate, repeated his seminar in Great Plains history. A Work-Study Program in Historical Archeology, offered by the St. Mary's City Commission in cooperation with the American Studies Program of the Smithsonian, George Washington University, and St. Mary's College of Maryland, was held from June 17 to August 23, 1974, with participation by graduate students and Smithsonian staff members. In addition to these formal seminars, supervision of individual reading and research projects, thesis direction, and preparation of comprehensive examinations were undertaken by the director and cooperating Smithsonian staff members.

Staff publications for 1973-1974 are listed in Appendix 8.



The western towers of the Smithsonian's castle, looking toward the Potomac River.



## MUSEUM PROGRAMS

PRESERVATION, STUDY, AND INTERPRETATION are key functions in any museum or museum system. The care with which objects are registered, examined, and treated; the thoroughness with which they are studied and the clarity with which they are presented and interpreted to the public are gauges to a museum's ultimate excellence. Yet, many of these functions take place away from public view, with the attendant consequence that they are often funded with inadequate resources or carried out in inadequate spaces. This has intermittently occurred at the Smithsonian. The enormous growth of activities which has developed in the last decade, the acquisition of new collections, the founding and construction of new museums as well as new fields of research which have opened could well have justified, in the eyes of some, a slackening of efforts and a shifting of resources to some immediately more glamorous result. It is a measure of the historical commitment of the Institution to the search of excellence that this has not been the case.

The last few years have seen increased emphasis given to developing the infrastructure in the fields of conservation, libraries, archives, and more recently in registration. In these key areas major progress was made in fiscal year 1974.

The Smithsonian Library, which is as old as the Institution itself, has undergone careful in-house examination and assessment of its program and activities, aimed at refining its processes, maximizing its resources and responding more promptly to the needs of the Institution and of the scholarly fraternity. Cooperation with other libraries — federal, state, and private — has led to a pilot program in computerized cataloguing which will vastly improve the rate of processing as well as its quality. The needs of the rare book collections, the ferreting out of uncatalogued rare materials,

and developing procedures for their conservation and restoration have all made major strides. Greater attention has been paid to the needs of Bureau libraries and to assisting them in responding more promptly and fully to the requirements of their constituency. Steps were taken which will lead to the complete cataloguing of the important library of the National Air and Space Museum by the dedication of its new building in July 1976.

The Archives of the Institution, concerned primarily with its history and the history of scholarship within it, have been brought to virtually full intellectual control. Inventorying of archival resources has progressed and computer systems have been developed for their cataloguing in close cooperation with curatorial departments and the central and bureau libraries.

Conservation, an ever present, indeed a growing concern to all museums, has been further strengthened by enlarging the amount of space allotted to the Conservation Analytical Laboratory, by the purchase of more sensitive and highly specialized equipment, and by the active recruitment of additional staff members. In spite of the progress made, far more needs to be done. The present capacity is hardly able to keep up with immediate, emergency needs, let alone allow for the constant review required by such varied collections as those possessed by the Institution. To maximize resources, avoid the possibilities of duplication, and to focus more clearly on the needs, a Conservation Council was created which regularly will assemble key conservators of all Smithsonian museums. In addition, the staff of the Conservation Analytical Laboratory has been active in assisting training organizations in developing, as rapidly as possible, the additional professionals which are urgently needed not only by the Institution but by museums throughout the country. Conservation is more than the monitoring of conditions and finding palliative methods to remedy the desecrations of time or of man. It is also basic research in the properties of materials and in the manners in which these materials have been assembled by nature or by man. The Conservation Analytical Laboratory has been under increasingly steady pressure to provide technical data to bolster the hypotheses of historical research or stylistic development.

The processing of objects either belonging to the Institution or sent to the Institution for study or exhibition has been thoroughly

reorganized. A registration capability is being developed in each of the Smithsonian museums that did not have it so that each can achieve more expeditious and accurate control on the whereabouts of their holdings and, perhaps more important, monitor their conditions in more efficient ways. A Registrarial Council has been created to develop the required parameters.

The foundations have been laid for the development of a Central Registrar's Office that will help coordinate the growth of the registrarial department in each of the museums, avoid duplications, attain coherence in methods, and help develop basic retrieval systems which, eventually, may be coordinated with regional, national, or, indeed, international data networks. The collections of the Institution represent a data bank unequaled anywhere. The potential of mastering a substantial portion of this wealth by the means of computers has already been demonstrated in discrete areas.

Museums which are essential for the transmittal to the future of the heritage of the past must, however, be of service to the present. There is no contradiction in these terms as long as there is a clear understanding of goals and integrity in their pursuit.

Exhibition is a key function for a museum. In this area, also a major reorganization has brought to each museum intellectual and physical control over the resources with which it can interpret its holdings. Certain museums and bureaus, either too small to have an exhibition resource of their own or that have too infrequent need for such specialized capabilities, are served by the recently developed Office of Exhibits Central. Some of its specialized shops, virtually unmatched for their abilities, particularly in the area of modeling and plastics, serve the entire family of Smithsonian museums. This office also has more general workshops which provide design and construction capabilities to those units that do not have exhibit departments. The reorganization of the Office of Exhibits has led to closer cooperation between design and curatorial staffs.

The Office of Exhibits Central and the exhibit offices in various museums are contributing and participating in the psychological studies conducted by the Office of Museum Programs. These studies are specifically designed to acquire more information about museums as a learning environment and to developing more responsive methods for orientation of the museum visitor. These



studies, which are now coming to fruition, will undoubtedly result in new exhibit concepts and forms of presentation. Their timeliness is evident since the Institution is gearing toward an unprecedented efflorescence of exhibition activities which will culminate in the Bicentennial Year.

For the past decade, the Institution has recognized that it had a duty to assist those less wealthy institutions around the country in presenting to their public a richer fare. This concern took on concrete and permanent form with the development of the Smithsonian Institution Traveling Exhibition Service. This has made available hundreds of exhibitions of high quality, at modest cost, to museums, historical societies, colleges, universities, and cultural centers. The efficacy of sites had, in the last few years, been increasingly jeopardized as costs increased and borrowing organizations were unable to assume the rental fees which were necessary for a break-even program. Federal funding of sites, for the first time in fiscal year 1974, has helped to maintain a balance. Between now and the end of the Bicentennial Year, approximately 250 new exhibitions will be developed on various subjects concerned with history, art, and science. Major emphasis has and will be given to incorporating into traveling exhibitions Smithsonian concepts and, where appropriate, objects so that the Institution's resources on the Mall can be shared more broadly with the Nation at large. Many of these new exhibitions will be built by the Office of Exhibits Central, to concepts and specifications provided by sites. To increase the educational usefulness of these exhibitions, kits of educational materials, designed for schools, will be prepared and an increasingly large number of sites exhibitions will be accompanied by didactic materials which will be geared to various levels so that the broadest benefit can be derived by their presence.

Assisting museums in developing the expertise of their staff or in solving special problems has been another historic service of the Institution. In the last few years, it has been rationalized by the Office of Museum Programs through the presentation of workshops, available free of charge to museum personnel from across the country. This program, increased in effectiveness in 1974, will be broadened in the years ahead. Disseminating knowledge on conservation through expertly prepared series of slide lectures is

another service recently developed. This will be supplemented by upward of 40 video-taped programs on the basic principles of conservation and conservation practice. These programs will be available to museums, historical societies, and other interested groups.

The study of the museum as a learning environment, referred to above, has led to staff participation in several seminars, and a series of short articles were published in *Museum News*. A major monograph by Dr. Chandler Screven, *The Measurement and Facilitation of Learning in the Museum Environment: An Experimental Analysis*, is under preparation for publication by the Office of Museum Programs.

The National Museum Act, first funded in fiscal year 1972, continued to be administered by the Office of Museum Programs and chaired by the Assistant Secretary. The contribution of the Act to professional enhancement has been universally recognized and has been most visible in the number of workshops, funded under the Act, that have been held around the country under the auspices of the American Association of Museums, the American Association for State and Local History, or other organizations. Developing new training programs and attracting talented new minds to the profession are challenges which museums must meet. The Act has provided a mechanism to assist in these developments and in carrying out special research on museum problems and opportunities.

Renovation and restoration of the Arts and Industries Building, in preparation for the Bicentennial Year, is another major responsibility of the Assistant Secretary for Museum Programs. This building, the second structure on the Mall built for the Smithsonian Institution, was opened to the public in 1881. It was erected to house the vast collections which were acquired after the closing of the centennial exhibit of 1876 at Philadelphia.

Appropriately, the first major exhibition to be shown in the renovated Arts and Industries Building will be devoted to the recreation, in capsule form, of the Philadelphia Centennial Exhibit. That summary of the Industrial Revolution's accomplishments and the Western Hemisphere's no doubt will be the cause of much nostalgia and pride.

The Assistant Secretary has continued to represent the Secretary on the Advisory Council for Historic Preservation and on its

International Centre Committee. He participated actively in a number of professional organizations notably as Vice-President of the American Association of Museums, Vice-Chairman of the International Council of Museums Committee of the AAM, and Chairman of the AAM Professional Relations' Committee.

He was elected a member of the Council of the International Centre for the Preservation and Restoration of Cultural Property, Rome, and Vice-President of the International Council of Museums, Paris.

### *Conservation-Analytical Laboratory*

The activities of the Conservation-Analytical Laboratory (CAL) support researches in many areas of the Smithsonian — some 30 Divisions in any one year. It would not be proper to reveal some of these in advance of publication by the principal investigator. Others follow.

CAL has investigated the use of neutron-activation and electron-microprobe analysis of various panes of glass in a medieval window for the purpose of detecting replacements, investigating early technology, and with a view to attributing panes to particular workshops.

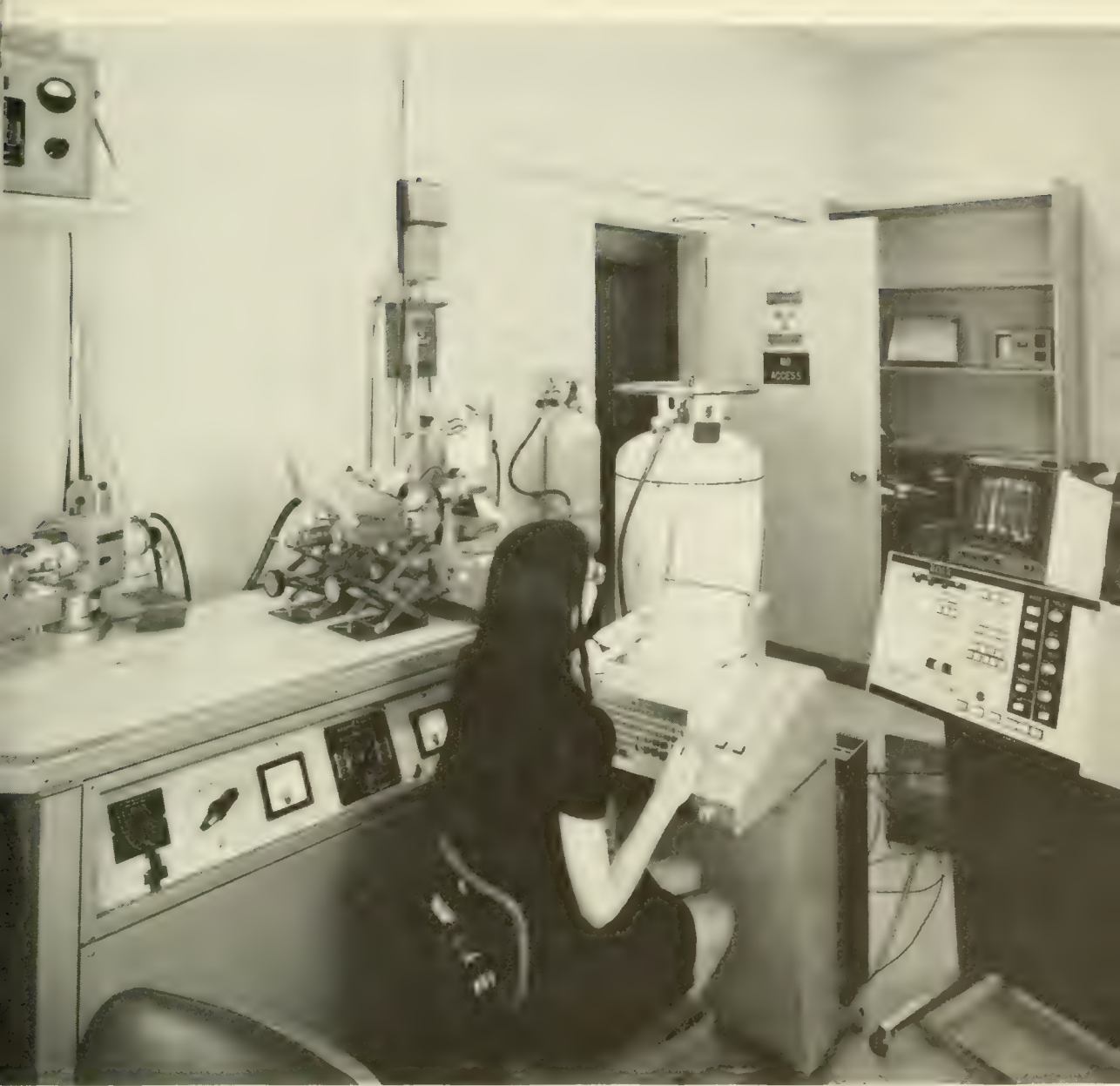
An analysis has been recently published on the ink of the Vinland Map. Another interpretation of the results appeared possible. The possibility has been investigated, using microchemical, microscopic and X-ray diffraction techniques.

Elemental analyses of majolica ware have revealed the possibility of distinguishing between Spanish and Colonial-Mexican origins for particular specimens.

New X-ray fluorescence equipment for the rapid analysis of objects has been installed and is being brought into service. Some early results in the difficult field of analyzing liquid measures made of pewter have indicated distinct differences in composition for measures of English and Scottish origin.

An iron ball, golf-ball size, that sounded musically when it was struck, was submitted for suggestions about its nature. X-radiography discovered a sounding spiral-wire and loose ball inside.





A view of the X-ray Laboratory, Conservation-Analytical Laboratory, Smithsonian Institution. On the left a pewter vessel is exposed to a beam of X-radiation and gives out secondary radiation characteristic of the elements present within it. This secondary radiation is received by a solid-state detector kept cold by a Dewar vessel of liquid nitrogen. The energy-dispersed spectrum is displayed on a monitor screen (on the right hand side of the picture) above a control panel. The spectra from two different samples can be stored in separate memories and displayed together for comparison by using the control panel, which can also superimpose markers on the screen representative of various elements. The operator is seated at a Telex keyboard, which is used to communicate with the mini-computer behind it. Results of computations made upon data obtained from the display screen are printed out on paper from the roll.

Examination of samples provided from Eastern gongs has revealed a metallurgical structure that has received very little notice in the literature.

A Peale drawing submitted for treatment was found by examination in infrared light to contain an earlier version. Careful photography using infrared light has now enabled exhibit of both versions, possibly drawn by father and son.

An important payroll had been written in iron-gall ink on paper so very acid that washing was desirable. Tests of the ink-line revealed that it could be damaged by water, so a safer washing procedure was devised.

A series of elaborate Western saddles in decaying condition, embellished with silver and other threads and metallic plaques, have presented numerous technical problems of identification and treatment in the course of cleaning and repair for exhibition.

Close examination of an eighteenth-century harpsichord-stand preliminary to restoration revealed several phases of earlier rebuilding.

### *National Museum Act Program*

The National Museum Act, authorized in 1966, received an appropriation of \$901,000 in fiscal year 1974. In accordance with the legislation, the National Endowment for the Arts and the National Endowment for the Humanities each received \$100,000 from the above sum. Under the legislation, the Smithsonian may grant funds to specific projects that advance the museum profession at large, either through research, training, or publication. Every proposal funded must clearly describe how it will upgrade the museum profession — its techniques, approaches, and methods.

A total of 182 applications were received and reviewed by the Advisory Council who recommended funding for 64 projects. The Advisory Council consists of museum professionals representing different aspects and areas of the museum field — art, science, history, education, conservation, and exhibition. The Council members in 1974 were: William T. Alderson, Director, American Association of State and Local History; Charles E. Buckley, Director,

St. Louis Museum of Art and President, American Association of Museums; W. D. Frankforter, Director, Grand Rapids Public Museum; Lloyd Hezekiah, Director, Brooklyn Children's Museum; Lawrence J. Majewski, Chairman, Conservation Center, Institute of Fine Arts, New York University; Giles W. Mead, Director, Los Angeles County Museum of Natural History; T. Miake, Director of Programs, Ontario Science Museum; Arminta Neal, Curator of Graphics Design, Denver Museum of Natural History; Barnes Riznik, Vice President, Old Sturbridge Village; Frank Taylor, Research Associate, Smithsonian Institution; Vernal T. Yadon, Director, Pacific Grove Museum of Natural History; and Paul N. Perrot, Chairman, and Assistant Secretary for Museum Programs, Smithsonian Institution.

In 1974, the Advisory Council added a new program — Travel Grants for Beginning Professionals. Persons who have been gainfully employed by the profession for not more than four consecutive years and not less than one year are eligible for grant consideration under this program. The objective of this program is to provide individuals with the opportunity to broaden their knowledge and acquaint themselves with specific operations in other museums and institutions. Twenty-seven grants were awarded in this area.

Special attention was given to Research in Conservation Techniques and Materials. Six projects were funded in this category including, Dating by Thermoluminescence, the Use of Trialkoxyalkylsilanes for the Conservation of Stone, and Control of Shock and Vibration of Objects in Transit.

The National Museum Act continues its strong support for publications to distribute technical information on a broad scale. In addition to support for technical articles as a supplement to *Museum News*, two books, *Museum Trustees Handbook* and *Rene d' Harnoncourt: His Art of Installation*, and a monograph, *Collective Bargaining in Museums* were funded.

Seminars, especially those providing in-service training to members of the profession, received special emphasis. Eighteen workshops covering such topics as museum education, fund raising, registration methods, zoo management, administration, publication programs, docent programs, museum architecture, and Bicentennial program planning were a part of the seminar program.



## *Office of Exhibits Central*

The newly established Office of Exhibits Central (OEC) assisted almost every office of the Smithsonian Institution during its first full year of operation. The Special Exhibit Resources Group — which includes the Models, Plastics, and Restoration Shops and Freeze Dry Laboratory, the Motion Picture Unit, Museum Lighting Office, Audio Visual Unit, and Exhibits Editor's Office — provided service and consultation in their specializations on a wide variety of projects to each Smithsonian Museum on the Mall. The Central Design and Production Group greatly increased the support of programs for the Smithsonian Institution Traveling Exhibition Service, the National Zoological Park, and the Division of Performing Arts' Festival of American Folklife. Both groups with the administrative staff of the OEC developed shop facilities and procedures during this period and continued to refine operations to meet the increasing needs of Smithsonian bureaus and offices.

The Twenty-fourth Street facility was activated for fabrication and graphic production and is now fully operational. The Administrative, Design, and Editor's offices are located in the Arts and Industries Building and the Special Resources shops and laboratories continue to function in their former locations at the National Museum of Natural History, and the National Museum of History and Technology.

The Office of Exhibits Central recorded 156 project requests in its first year and completed 95 of these. Of the balance, several are long-range or Bicentennial programs of the Institution. Maintaining a philosophy of operational flexibility and improving an ability to perform unique tasks wherever needed, the OEC is developing plans and activities with its client organizations within the Institution for both long-range and specialized exhibition services.

## *Office of Museum Programs*

The Office of Museum Programs, as part of the Office of the Assistant Secretary for Museum Programs, is an aggregate of programs responsible for coordinating activities related to training

in museology and museography, and the development of new techniques relating to museum administration and practices. Presently, the office maintains three major programs — the Museum Workshop Program, the Conservation Information Program, and the Psychological Studies Program.

The Museum Workshop Program offers workshops, seminars, and training courses to any individual gainfully employed by a museum. Each workshop, taught by Smithsonian staff, is devoted to specific methods or problems. Enrollment is limited, and instructors try to concentrate on the particular needs of each participant. Special attention is usually given to the problems of the small museum's budget, services, and facilities. Workshops offered this year featured: exhibit design, graphics techniques, silk screening, label writing, editing and production, fabrication and installation methods, model-making, freeze-drying, membership programs, traveling exhibitions, development and financial planning, and psychological methods.

The Conservation Information Program is another service designed to make the knowledge and facilities of the Smithsonian accessible to as large an audience as possible. The program acquaints small museums, interested organizations, and individuals with selected theoretical and practical principles currently practiced in the field of museum conservation. This information — in the form of video-taped programs and slide lectures accompanied by tape commentaries — is lent, free of charge, to all who request it. To date, the Conservation Information Program, in cooperation with the Smithsonian Institution Conservation-Analytical Laboratory, has produced 4 slide presentations on the curatorial care of objects and 10 more are being prepared during the next year. Some selected subjects include: dry methods in the cleaning of prints, drawings, and manuscripts; proper mounting and matting of drawings, and manuscripts; proper mounting and matting of paper; the protective lining of a wooden storage drawer for textiles and costumes; and the wet cleaning of antique cotton, linen and wool.

The Psychological Studies Program provides both direct and evaluative services to the Smithsonian Institution and engages in applied behavior research for broader application to museum professional practices. The staff designs and tests museum behavior studies which aid (1) the study of the museum as an institution for

the preservation, interpretation, and exhibition of objects, and (2) the construction of several practical and effective visitor-behavior projects employing some of the methods of social science that the museum professional can undertake in his own museum or gallery. The Psychological Studies Program analyzes visitor behavior, especially that of communication. Investigations gauge the educational effectiveness of exhibits and exhibit techniques. The Program is also concerned with the problem of visitor orientation, that is, how to initiate the visitor into the museum experience for optimum use of his time and interests. The primary testing grounds for research activities have been the National Museum of Natural History, the National Museum of History and Technology, and the Renwick Gallery of the National Collection of Fine Arts. Subjects examined in NMNH were: the relative effectiveness of different exhibit halls; visitor characteristics most likely to determine visitor behavior; and the relationship between the physical layout, familiarity and attractiveness of exhibit halls, and the visitors' behavior within them. At NMHT, the staff analyzed traffic flow, crowding, attraction and holding power of exhibits, orientation within the gallery, the effectiveness of different kinds of labels, use of facilities, and causes of visitor fatigue. Visitor learning and ways of facilitating it were tested for two years at the Renwick.

### *Office of the Registrar*

The Smithsonian is evaluating and improving its registration system. The Office of the Registrar, which dates back at least to the 1880s once kept records on all specimens and administered all shipping for the Smithsonian. New museums, increases in curatorial staff, and increased accession rates have outpaced the development of the Central Registrar's office. Presently actions are underway to break with old traditions. During 1973, the Council of Registrars, which represents most museums in the Smithsonian complex, made thorough studies of several registration problems and made extensive reports to the Assistant Secretary for Museum Programs. These recommendations are the initial steps toward beneficial change in the Institution's registration system.



Although yet a vision rather than a reality, the new order of registration at the Smithsonian is discernible, and it is the goal toward which present activities are directed. Each museum will have a registration staff adequate to ensure proper documentation of all acquisitions and to work with curators and conservators to ensure the security and availability of specimens. The Central Registrar will have several functions. As the senior registrar, he will assist museums with their registration problems and he will develop new registration techniques as required by the complexities of the national collections. Most important of all, the Central Registrar will take an Institution-wide view of the national collections and the systems which protect and service these resources.

Thus, the primary achievement of fiscal year 1974 was careful development of goals.

### *Smithsonian Institution Archives*

During fiscal 1974 the Smithsonian Archives continued its efforts to gain intellectual control of Archives throughout the Institution. Work continued on records of the National Museum of Natural History, where an intensive survey revealed that some 6.5 million documents remain unprocessed and in need of archival preservation.

The National Museum of History and Technology presents an archival challenge unique among Smithsonian bureaus, because it is the only bureau which maintains a major manuscript collecting program in addition to creating its own administrative records. During 1974 the Archives staff began a major effort to aid in the care and preservation of those materials. A consultant employed by the Archives surveyed the records and manuscript holdings of the Science and Technology Department, and submitted a report to the Director of the National Museum of History and Technology, which will serve as the basis for policy decisions defining the role of the Archives in the National Museum of History and Technology.

The Archives made provisions to care for the records of the National Collection of Fine Arts and the National Portrait Gallery, as well as the National Air and Space Museum.

Many other ongoing programs continued, with emphasis on microfilming and efforts to develop computerized finding aids to the Archives' holdings. Arrangement and microfilming of the accession records continued and the specimen catalogues of several divisions in the National Museum of Natural History were filmed.

### *Smithsonian Institution Libraries*

Nineteen seventy-four was a year of staff participation and a year of experimentation in new forms of operations and services. During the first half of the year the Libraries' staff took part in a study of the Libraries' management. A report was submitted to the Director of Libraries in January 1974, and after discussions with the staff, the Director of Libraries accepted more than fifty of the study's recommendations. The recommendations are being implemented by the Libraries' administrators. An Implementation Assessment Group, appointed to monitor the progress of implementation, is to make periodic reports to the Director of Libraries and to the staff. This management study introduced an atmosphere of staff participation in decision making.

The most promising technical development was the Libraries' experiment with the Ohio College Library Center (OCLC) on-line cataloguing system. This system produces catalogue cards formatted to Smithsonian specifications faster and more efficiently than the previously used manual procedures. Furthermore, the OCLC system, which provides on-line access to a large and growing bibliographic data base, has facilitated the process of ordering library materials. The introduction of this system has effected some experiments in workflow and staffing patterns to permit more efficient use of personnel. The staff is now assessing the effectiveness of the OCLC system and is planning for expansion of automated systems.

Throughout the year, bureau and branch librarians met to discuss common problems. For the first time, librarians responsible for the development and maintenance of library collections in various bureaus and departments participated in the allocation of book and binding funds for the Libraries. The Deputy Assistant Director for

Bureau Services has initiated cooperative efforts to formulate a library collection development policy for the Institution.

Services to users have been augmented. For example, the National Air and Space Museum Library produces a current awareness list; users in the Smithsonian Astrophysical Observatory and Radiation Biology Laboratory Libraries are provided with individually profiled current awareness services; librarians at the National Zoological Park and Smithsonian Tropical Research Institute index relevant literature for their users.

Librarians serving bureaus and departments of the Institution have been attempting to become more closely involved with programs and plans of the bureaus which they serve. The National Air and Space Museum librarian serves as Chairperson of the NASM Collection Development Committee; both the National Air and Space Museum and National Collection of Fine Arts/National Portrait Gallery librarians attend staff meetings held by their bureau directors; at the request of the National Museum of History and Technology librarian, a library committee of curators has been formed to advise the bureau librarian.

In spite of a limited budget for the purchase of books and journals, the Libraries continued to acquire many of the materials required to support Smithsonian Institution programs. To a large extent, important gifts and the Libraries' well-established exchange program made this possible. The year saw exchange programs initiated with the People's Republic of China and with the Museums and Monuments Office in Ghana.

The binding and preservation program of the Libraries has been hampered for a number of years by lack of adequate funds. In anticipation of increased support, binding and preservation needs have been assessed. The program to identify and preserve rare books in the Institution continued.

One area of concern expressed in the Libraries' management study was the personnel program. As a result, some changes in personnel policies and staffing are being tested and a Staff Development Committee has been appointed.

The Libraries supported staff participation in continuing education and professional activities such as seminars, conferences, meetings, and training courses. Twenty-six Libraries' staff members



attended training courses funded by the Libraries. Several staff members have received outstanding professional recognition. Catherine Scott, NASM bureau librarian, is a member of the Board of Visitors of Catholic University of America Library and a member of the National Commission on Libraries and Information Science. William Walker, NCFA/NPG librarian, is Vice Chairman Elect of the Art Libraries Society of North America (ARLIS/NA). Elaine Sloan, Assistant to the Director for Planning and Research, received a Ph.D. in Library and Information Services from the University of Maryland. Dr. Russell Shank, Director of Libraries, completed his term as President of the Association of College and Research Libraries and was elected Vice President, President Elect of the United States Book Exchange. Dr. Shank was the recipient of a fellowship from the Council of Library Resources and was granted sabbatical leave by the Smithsonian from February to September, 1974, to study the implications of telecommunications policy for libraries and information resources. Jean Chandler Smith, Assistant Director for Bureau Services, was appointed Acting Director of Libraries.

Among the many distinguished visitors to the Smithsonian Institution Libraries was a delegation of heads of libraries from the People's Republic of China. The Libraries provided graduate library school students opportunities for study and field work. As part of a training program, two American Indians from Navajo Community College Library worked in the Anthropology, NMHT, and NASM Libraries.

#### Major Purchases by Smithsonian Institution Libraries, Fiscal Year 1974

Audubon, John James. *The Birds of America; from original drawings*, by John James Audubon. London, 1827-1838. New York, Amsterdam, Johnson Reprint Corporation, Theatrum Orbis Terrarum, 1971-1974. Facsimile edition. 4 volumes.

*City Directories of the United States*. Segment I. City Directories of the U.S., through 1860. (microfiche)

Segment II. City Directories of the U.S., 1861-1881. Parts I-IV. (microfilm)

*Author and Classified Catalogues of the Royal Botanic Gardens Library*. Kew, England, 1973.



The beautiful National Collection of Fine Arts / National Portrait Gallery Library.

Rare Books Purchased by Smithsonian Institution  
Libraries, Fiscal Year 1974

- Aldrovandi, Ulysses. *De quadrupedibus solidipedibus*. Bologna, 1639.
- Aldrovandi, Ulysses. *Quadrupedum omnium historia*. Bologna, 1621.
- Bauhin, Johann. *Historia plantarum universalis*. Ebrovndni, 1650-51. 3 volumes.
- Belidor, Bernard Forest de. *Nouveau cours de mathématique à l'usage de l'artillerie et du génie*. Paris, 1757.
- Bell, William A. *New Tracks in North America*. London, 1869. 2 volumes.
- Benkard, Ernst. *Das Selbstbildnis vom 15. bis zum Beginn des 18. Jahrhunderts*. Berlin, 1927.
- Bien and Sterner. *New rail road map*. New York, 1855.
- Boulter, Daniel. *Muséum Boulteranium. A catalogue of the curious and valuable collection of natural and artificial curiosities in the extensive museum of Daniel Boulter*. Yarmouth . . . London, [1910].
- Bruff, J. Goldsborough. *Gold rush. The journals, drawings and other papers of J. Goldsborough Bruff . . . April 2, 1849-July 20, 1851*. New York, 1944.
- Caesius, Bernardo. *Mineralogia sive naturalis philosophiae thesauri*. Lugduni, 1637.
- Clap, Thomas. *The annals or history of Yale-College in New Haven*. New Haven, 1766.
- Delius, Christoph Traugott. *Anleitung zu der Bergbaukunst nach ihrer Theorie und Ausübung*. 2d. edition. Vienna, 1806. 2 volumes of text, 1 volume of plates.
- Ehrenberg, Christian Gottfried. *Über noch zalreich jetzt lebenden thierarten der kreidebildung*. Berlin, 1840.
- Euler, Léonard. *Introduction à l'analyse infinitésimale*. Paris, 1796. 2 volumes.
- Findley, William. *History of the insurrection in the four western counties of Pennsylvania*. Philadelphia, 1796.
- Forbes, James. *Hortus Woburnensis*. London, 1833.
- Foullon, Abel. *Descrittione, et uso dell'holmetro*. Venice, 1564.
- Fregoso, Battista. *De dictis factisque memorabilibus collectanea*. Milan, 1509.
- Fremont, John Charles. *Memoirs of my life*. Chicago, 1867. Volume 1.
- Galucci, Giovanni Paolo. *Theatrum Mundi et Temporis*. Venice, 1589.
- Grant, Mrs. Anne McV. *Memoirs of an American lady*. London, 1808. 2 volumes.
- Ingen Housz, Johann. *Versuche mit pflanzen*. Vienna, 1786. 2 volumes in one.
- Instruction sur les mesures déduites de la grandeur de la terre. . . . Paris, [1794]. (An II de la République, une et indivisible).*
- Klein, Jacob Theod. *Naturalis dispositio echinodermatum*. Danzig, 1734.



- Leonicens (Nicolaus). *De serpentibus opus singulare ac exactissimum*. Bologna, 1518.
- Le Vaillant, François. *Voyage de M. Le Vaillant dans l'intérieure de l'Afrique*. . . . Paris, 1790. 2 volumes.
- Lunel, Godefroy. *Histoire naturelle des poissons du bassin du Léman*. Geneva, 1874.
- McCrary, Edward. *The history of South Carolina in the Revolution, 1775-1780*. New York, 1902.
- . *The History of South Carolina in the Revolution, 1780-1783*. New York, 1902.
- . *The history of South Carolina under the Proprietary Government, 1670-1719*. New York, 1901.
- . *The history of South Carolina under the Royal Government, 1719-1776*. New York, 1899.
- Mahan, Alfred Thayer. *Sea power in its relations to the War of 1812*. Boston, 1905. 2 volumes.
- [Massachusetts Colony]. *The votes and proceedings of the freeholders and other inhabitants of the town of Boston, in town meeting assembled*. . . . Boston, [1772].
- Morison, Robert. *Plantarum umbelliferarum distributio nova*. Oxford, 1672.
- Muller, Otho Friderich. *Zoologia danica seu animalium Dabiae et Norwegiae*. . . . Copenhagen, 1788. 4 volumes.
- Musschenbroek, Pierre Van. *Essai de physique*. Leyden, 1751. Volumes 1 & 2.
- Paris, Edmond. *Le Musée de Marine du Louvre*. Paris, 1883.
- Paris, Muséum d'Histoire Naturelle. *Instruction pour les voyageurs et pour les employés dans les colonies sur la manière de recueillir, de conserver et d'envoyer les objets d'histoire naturelle*. Paris, 1818.
- Pinset, R., & D'Auriac, Jules. *Histoire du portrait en France*. Paris, 1884.
- Porta, Giambattista. *Phytognomonica*. Frankfurt, 1591.
- Portis, L. *De sestertio ponderibus et mensuris antiquis libri duo*. Venice, 1500.
- Stuart, James. *Three years in North America*. Edinburgh, 1833. 2 volumes.
- Veth, J. *Portretstudies en silhouetten*. Amsterdam, 1914.
- Voet, Joannes. *Catalogues systematicus coleoptorem*. The Hague, [1804]-1806. 2 volumes.
- Woodward, John. *An essay toward a natural history of the earth and terrestrial bodies*. . . . London, 1695.
- Zonca, Vittorio. *Novo teatro di machine et edificii*. Padua, 1656.

## *Smithsonian Institution Traveling Exhibition Service*

The Smithsonian Institution Traveling Exhibition Service (SITES) circulates more shows on more subjects to more people than anyone else. It is unique in that it circulates exhibitions of history, science, and technology in addition to exhibitions on art.

This past year, several new initiatives were undertaken as a response to the needs of SITES' customers. Each new effort had to be oriented philosophically and financially to the Smithsonian's effort to increase as well as diffuse knowledge.

This year, SITES received its first direct federal appropriation. Fulfilling a promise to Congress, appropriated funds were directed toward keeping rental fees within the range of medium and small institutions that count on the Smithsonian for high quality exhibitions. Further, federal funds were used to improve exhibition quality by expanding programming and educational activities suggestions to more effectively use the circulating shows.

The primary responsibility for the development of these materials is being pursued by a Program Coordinator, a new position on the Traveling Exhibition Service staff. It has been determined that there are far too many projects for one such position and plans have been made to add more persons in the future.

SITES representatives were present at each of the six regional meetings of the American Association of Museums this year. Inquiries about SITES' program and consultation to others on the travel of shows were provided. A significant amount of foreign as well as domestic travel was undertaken to assure that SITES standards were upheld in the preparation of shows for travel. In addition to many of the 50 states and Puerto Rico, SITES staff worked with exhibition sources in Sweden, Belgium, Denmark, Austria, Great Britain, Norway, Israel, Australia, and New Zealand. Four members of the SITES staff attended the American Association of Museums national meeting in Fort Worth, Texas, and a delegate was sent to the International Council of Museums meeting in Copenhagen.

A Bicentennial Exhibitions effort was launched this year with the assignment of two full-time staff members to this program. Two exhibitions especially mounted for the Bicentennial began their tours.

A major program to improve SITES' exhibition offerings in science

was begun. A National Science Foundation grant to develop a series of exhibitions with the topic of "Understanding the Environment" provided the major impetus for the program.

A week-long workshop on the travel of exhibitions was held at SITES headquarters in April 1974. Nine representatives from museums in the United States, one from Puerto Rico, and two from Canada participated.

SITES concluded the year having booked over 600 exhibitions viewed by an estimated 4,800,000 persons. There are now 2,600 institutions on SITES mailing lists. At the end of the year, 109 exhibitions were in circulation. During the twelve-month period, 28 exhibitions were produced for tour and 3 were refurbished for extended

In fiscal year 1974, approximately \$250,000 in grants, gifts, and contracts were received to develop exhibitions and educational programs. With the federal appropriation, these funds had the effect of making SITES exhibitions more accessible than ever before.

#### Exhibitions Beginning Tours in Fiscal Year 1974

Civil Engineering in Switzerland  
Huddinge Hospital: A Public Environment  
Below Man's Vision  
Antwerp's Golden Age  
Children in Bondage  
Manuscripts of the American Revolution  
American Coverlets (two versions)  
Our Only World (six copies)  
Witness To Our Time  
Kurt Kranz: Bauhaus and Today  
In Beauty It Is Begun  
Mary Bruce Sharon: An American Primitive  
200 Years of Royal Copenhagen Porcelain  
Chinese Export Porcelain  
Folk Paintings from Dalarna  
Next Door, Down the Road, Around the Corner (two copies)  
Objects for Preparing Food  
Eighth Dulin Print and Drawing Competition  
The Five Sense Store: An Aesthetic Design for Education  
Permutations: Earth, Sea, Sky (30 works on paper, by Lawrence Calcagno)

#### Exhibitions Refurbished for Extended Tours

Alvar Aalto  
Handicrafts of the Southeast  
Shout in Silence





Valerie Lee Sedano, a handicapped National Museum of History and Technology Staff Associate for Education, employs sign language to describe for deaf children the Museum's largest "touch-it" object, the 280-ton "1401" locomotive.

## PUBLIC SERVICE

DURING THE PAST 12 months an exciting fermentation has begun in the area of Public Service. This activity is in response to the impact of a larger public interest in a more extensive Smithsonian Institution, and, in equal measure, to a notably more discerning public interest in the educational potential of the Smithsonian museums and galleries, and their programs. In building the resources and the organization to meet these challenges, the Public Service divisions are helping to bring into balance the Institution's fulfillment of Mr. Smithsonian's mandate for the diffusion of knowledge as well as its increase.

For, basically, the role of Public Service is education, and Smithsonian educational activity has been mushrooming as the desire of the American public of all ages to be educated has burgeoned in one of the liveliest social phenomena of our time. During the year, 21 Smithsonian bureaus conducted specifically educational programs which reached a total of close to 300,000 people. These were by no means all Public Service functions, but all complemented the direct educational role of the Office of Public Service. Our view, in fact, is that our major museum and gallery directors are the best qualified to develop education programs related to their collections or researches. In consequence, we decentralized the Office of Elementary and Secondary Education and thereby made people and money available for the establishment of education specialist positions and supporting sections in all of the principal museums and galleries. A comparable reorganization is being considered for the Office of Public Affairs; in addition, the funds formerly allotted to the Smithsonian Institution Press and divided by the Director of the Press among interested bureaus will henceforth be distributed directly to

bureau chiefs so that each may determine his own publishing priorities. Such changes permit us to reorganize the central offices of the Office of Elementary and Secondary Education and ultimately of the Office of Public Affairs so that their efforts can be focused on Institution-wide requirements.

The twin challenges posed by Smithsonian growth and by the approach of the Bicentennial have stimulated every one of the Public Service divisions, as will be evident in the following accounts. At the end of fiscal 1974 *Smithsonian* (magazine) circulation and National Associate membership exceeded 600,000 and was steadily climbing; Resident Associate membership topped 20,000; Division of Performing Arts-produced *Smithsonian Collection of Classic Jazz* had sold 30,000 copies; and a striking further demonstration of public enthusiasm for Office of Public Service programs was evident in the long queues which formed before each of the 7 daily showings of the *Ascent of Man* film series, arranged by the Office of Public Service Free Film Theatre. In addition, not only the Public Service bureaus but the entire Institution is preparing for the anticipated results of the Smithsonian television series which will begin in the fall of 1974 and will bring Smithsonian treasures and Smithsonian interests to 20 to 40 million television viewers across the Nation. Every increase in public interest in the Smithsonian generates a requirement for service to that public, whether it be the development of new educational facilities or simply the organization and staffing of an office to reply to the increase in letters of inquiry or suggestion addressed to the Smithsonian.

Fiscal year 1974 did bring one reduction in the organizational makeup of the Office of Public Service with the very appropriate transfer of the Office of International Activities to the Office of the Secretary for Science.

Finally, the Office of Public Services wishes to express its warm appreciation to the 1120 dedicated members of the Smithsonian volunteers and the 530 Smithsonian volunteer docents who gave so much of their time and service to the Institution during 1974, and without whose help "Smithsonian Public Service" would have a far more limited connotation.





A contemplative visitor to the Anacostia Neighborhood Museum's exhibit, "Africa: Three Out of Many — Ethiopia, Ghana, Nigeria."



### *Anacostia Neighborhood Museum*

The Anacostia Neighborhood Museum now in its sixth year has continued to enrich the experience of museum visitors with a variety of exhibits and educational programs.

The year was highlighted by a series of major exhibitions. "The Evolution of a Community, Part II" communicated areas of concern that were relevant to all urban communities. It represented the shared feelings of the people of Anacostia concerning housing, unemployment, education, drug abuse, and crime. "Africa: Three Out of Many" represented the African language of art in its three-dimensional forms of sculpture and masks. The art, the religious inspirations, history, and culture depicted the people of Ethiopia, Ghana, and Nigeria — the three countries selected from many African nations.

The Barnett-Aden collection of paintings, sculptures, and prints was shown. The collection reflected the talents and concerns of an exciting group of American and Afro-American artists who emerged from the period which historians call the "Harlem Renaissance."





Exhibits at the Anacostia Neighborhood Museum, "Africa: Three Out of Many — Ethiopia, Ghana, Nigeria" (opposite page) and "The Barnett-Aden Collection" held January 20 to May 6, 1974, attracted many visitors. The latter proved to be an important art event in the Metropolitan area.

A variety of educational programs and films of popular interest were given during each exhibit and throughout the year. Over 40,000 children and teenagers participated in these activities.

The Mobile Division continues to take the museum to the people. Portable exhibits, teaching aids, demonstrations, and a Speakers' Bureau are all included in its outreach program.

The history of the Anacostia community is presently being researched for a publication entitled *Anacostia Story*, which is being prepared for the Bicentennial. Anacostia Neighborhood Museum is also looking forward to completion in 1974 of the construction of an Exhibits Design and Production Laboratory where, in addition to the preparation and production of exhibits for the Museum, an exhibits training program will train minority members in the arts and crafts of museum design and production. This laboratory, when in operation, will provide improved facilities for experimentation in exhibit design and production, which has been a goal of the Museum since its inception.



## Division of Performing Arts

Expanding the Institution's role as conservator and preserver of the Nation's creative forces, the Division of Performing Arts presented the Seventh consecutive Festival of American Folklife, which has become the largest summertime event in the Nation's Capital, and six different series and numerous individual events during the winter programs.

During the 1973-1974 season, 15,000 people attended concerts offering a range of creative musical expressions from baroque to bluegrass, as well as the second season of Jazz Heritage Concerts. Such artists as Leon Fleisher and the Theater Chamber Players, Bill Monroe and the Blue Grass Boys, Earl Brown, Earl Hines, and Carmen McRae were presented. Most concerts were preceded by free public workshops. To cope with capacity audiences, workshops had to be moved from the Hall of Musical Instruments to the Baird Auditorium midway through the season.

A new recording program instituted by the Division issued a historic first, the *Smithsonian Collection of Classic Jazz*, a boxed, six-record set including 85 selections from 17 record companies. The set was produced by Martin Williams, Director of the Jazz Program. Receiving critical acclaim and an unprecedented number of orders, the Collection is now in its third printing.

The Smithsonian Resident Puppet Theater, one of two continuously operated puppet theaters in the country, attracted 3000 visitors each week to three different shows: *Patchwork*, an improvisational series with music, *Pinocchio*, a new version of the classic, and *What If? . . .*, a puppet science-fiction fantasy. The Performing Arts Division contributes to a "lively mall" area through the operation of the carousel and the original old-time popcorn machine.

Performing Arts shares the American experience in its many creative forms with museum visitors and people across the Nation through the Smithsonian Touring Performance Service, offering performances not available through commercial management to museums, colleges, universities, and cultural centers. The 1973-1974 season saw 51 performances sent to 23 states, by the Smithsonian Puppet Theater, The American Folklife Company, High-



The 50-acre expanse between the Lincoln Memorial and the Washington Monument is the site of the Festival of American Folklife, July 3-14. Called the "Axis of the Nation" by Pierre L'Enfant, the greensward will see 700 participants and draw a projected 1.5 million visitors to the "Festival of the Common Man" in 1976. *Below:* Visitors join in singing and dancing in the Tribute to Tamburashi. The 1973 Festival marked the first participation by a foreign government — Yugoslavia.





8410 Old Mount Vernon  
Alexandria, VA. 2239  
March 27, 1972

Dear Mrs. Bennett,

Thank you so much for  
the outstanding lecture. You  
taught me a great deal of things.  
I think it was very sweet of  
you to volunteer to be a docent.

Because if you weren't a volun-  
ter you ~~wol~~ would make  
millions because you're the  
best, nicest, relaxed, and smartest  
guide I've ever seen, heard,  
or met. Thank you again.

Sincerely,  
Debbie Athanasian

Letter to a Docent from an elementary school student.



Students from Devonshire Elementary School in Fairfax County  
participate in Museum Education Day 1974.



woods String Band, Horace Silver, Jean Ritchie, and others. A post-Festival tour of Serbo-Croatian musicians traveling to ethnic communities in 6 cities became a pilot project which will service increased requests from state and local communities for Smithsonian aid in booking Bicentennial programs.

The Seventh Festival of American Folklife featured a new site, an expanded schedule, and new themes leading to a season-long Bicentennial Festival in 1976. The 1973 presentation focused on four theme areas that would be expanded for the Bicentennial: Old Ways in the New World, Working Americans, Native Americans, and Regional America. The Smithsonian was joined by the National Park Service as a co-sponsor. Called the "great national family reunion," the Festival attracted 1.3 million visitors, who came to learn more about themselves and about others from the United States and around the world.

### *Office of Elementary and Secondary Education*

Fiscal year 1974 has brought new directions and new challenges to the Office of Elementary and Secondary Education. As recently redefined, the Office is now a service unit, charged with giving assistance, upon request, to the Bureau education offices of all of the Smithsonian museums, the Chesapeake Bay Center for Environmental Studies, and the National Zoo.

A primary responsibility of the Office of Elementary and Secondary Education (OESE) is to encourage cooperation and exchange of information among the Smithsonian education offices and between those offices and the District of Columbia area schools. Toward this end, a number of efforts are underway. Two publications — a monthly newsletter, *Let's Go*, and an annual brochure, *Learning Opportunities for Schools* — inform teachers of Smithsonian programs and other activities of particular interest to young people and contain suggestions for using museums as educational resources. The publications are sent free of charge to over 1300 area schools. In addition, an annual Museum Education Day is held for teachers, school administrators, and museum educators. This year's event, which took place at the National Portrait Gallery and the National Collection of Fine Arts, presented a

selection of art, history, and science programs offered to school groups by the various education offices. A folk-music workshop, a Japanese tea ceremony, and a reenactment of the trial of abolitionist John Brown were among the programs demonstrated. A highlight of the day was a live animal demonstration by special guests from the Boston Museum of Science. Portions of Museum Education Day were filmed by WTOP-TV and shown on "Eyewitness News."

Teachers are reached also by a summer workshop program, now in its third year, which drew 34 participants from Montgomery County and the District of Columbia in 1973. The workshops enable teachers to develop curriculum units to be used in conjunction with museum visits. One manifestation of the workshops is presently in evidence in a Montgomery County fourth-grade classroom, where students have created an exhibit of American Indian crafts and are learning traditional methods of pottery-making and weaving in connection with visits to the National Museum of Natural History. Altogether, an estimated 1500 students have been engaged in art, history, and science projects during the 1973-1974 school year as a result of the summer workshops.

In 1973-1974, the energy crisis brought a disappointing 26 percent decrease in the number of school tours scheduled by this office for the Mall museums. The decline was represented by 2187 tours given to 50,865 children. Nonetheless, classes came from as far away as Cherry Hill, New Jersey, and Athens, Georgia, for the National Museum of Natural History's Early Man tour; and the number of outreach programs given in area classrooms jumped an encouraging 18 percent, serving a total of 9,438 children through 357 presentations.

An expanding force of volunteer docents, now numbering 326, has been recruited and trained by OESE. To augment their regular training, the docents were able to attend two seminar lecture series in 1973 — one in American studies and the other in the natural sciences. Good indicators of the success of the docents in inspiring young visitors to think about the exhibits and draw conclusions from what they see are the comments the students make in the course of their guided tours. The following are a few of the comments recently overheard on a Colonial Life tour in the Museum of History and Technology:

Fourth-grade boy: "Suppose you couldn't learn how to do all those things that needed to be done. What would have happened to you?"

Third-grade girl: "There's one reason I'd sooner have lived back in those days than now, and that's because back in those days you could be proud of what you did."

Fourth-grade girl: "When so much is up to you, I guess you sort of want to work hard at it because it makes you feel good to do it well."

For the past 4 years, a learning/service experience for teenager volunteers has been provided through OESE's summer "Info" program. In June, July, and August of 1973, more than 100 high school students, selected and trained by OESE, conducted visitors through the Mall museums.

Several new programs are now in the planning stages. An audiovisual presentation orienting teachers to Smithsonian education service is being considered, as are continuing teacher workshops beginning with the 1974-1975 school year. Through workshops, publications, and related activities the Office of Elementary and Secondary Education will continue to serve the Smithsonian's education offices and Washington area schools.

## *Office of Public Affairs*

In this technological age Americans receive more and more of their information and education from various forms of the electronic media. This fact alone poses new challenges to the museum community as well as to a diverse academic institution such as the Smithsonian, which has a charter to disseminate, as well as to increase, knowledge among mankind.

Audio and film recordings are the staples of the electronic media, but they require time, energy, imagination, skill, and heavy budgetary commitments to produce in a professional and meaningful manner. Yet, in the years to come, they will be as significant and lasting, perhaps, in the Smithsonian's archives as many editions of the printed word.



An upcoming series of major prime-time television specials, based upon the activities of the Smithsonian Institution, thrust a significant new role on the Office of Public Affairs in fiscal 1974. The Office became the coordinator of an allied effort of scientists, administrators, historians, and other Smithsonian professionals and the writers, producers, and other creative talents of the David L. Wolper organization. The goal of this joint effort is to bring home the richness and variety of the Institution's knowledge to millions of Americans who might not otherwise have had an opportunity to become aware of the Smithsonian's interests.

In addition to preparations for this 1974-1975 Smithsonian series, to be broadcast on the CBS television network as a presentation of the DuPont Cavalcade of television, the growth of the Smithsonian during the year placed other new demands on the Office of Public Affairs to provide a wide range of public information activities. The Office was heavily involved in preparations for the expanded Festival of American Folklife on the Mall, the new product development program, the planned opening of the Hirshhorn Museum and Sculpture Garden in the fall of 1974, and the Bicentennial, as well as in providing services to the ongoing Smithsonian programs of research, collections, and exhibits.

A telecommunications coordinator was selected from more than 300 applicants to oversee preparations for the Smithsonian's new television series and the Institution's other public efforts in the audiovisual media. The telecommunications staff of the Office of Public Affairs cooperated with numerous television, film, and radio producers planning programs based on Smithsonian activities, in addition to working with a producer who expects to air three significant television specials on the Smithsonian during the 1974-1975 season. Several documentary films on various aspects of the Smithsonian were also developed. "Radio Smithsonian" continued to produce a weekly half-hour radio program which during the past year was carried by some 95 radio stations Nationwide.

During the past year the News Bureau of the Office of Public Affairs wrote and distributed 311 news releases and responded to hundreds of requests from the wire services, newspapers, magazines, and the public for information on Smithsonian activities. A sampler of press clippings reflecting representative press interest



"Radio Smithsonian" with Radio Production Specialist Paul Johnson at the controls.





The Old Patent Office Building was commemorated as a National Historic Landmark in a ceremony held April 3, 1974, in the courtyard of that building, which houses the National Collection of Fine Arts and the National Portrait Gallery. Shown affixing the plaque are Harry Jordan, Assistant to the Director of NCFA; Mrs. Richard Nixon; and Secretary Ripley. Others present for the ceremony included, from left, Meredith Johnson, Office of Public Affairs; Mrs. David E. Finley; Ronald Walker, Director of the National Park Service; David E. Finley, Commissioner of NCFA and NPG; Charles Blitzer, Assistant Secretary for History and Art; Joshua Taylor, Director of NCFA; Mrs. Ripley; and Marvin Sadik, Director of NPG.



in the Smithsonian was initiated. Some 2.5 million building guides and brochures were also produced by the Office.

The Office continued to produce the *Smithsonian Torch*, a newspaper for the Institution's employees, the widely circulated monthly *Smithsonian Calendar of Events*, and the quarterly *Smithsonian Research Reports* which has been requested by the scientific communities of a number of other nations. The publication, *Increase and Diffusion*, was revised and brought up to date.

Current information on daily events and exhibits was provided by the recorded telephone service Dial-a-Museum. From information furnished by the Smithsonian Astrophysical Observatory, Dial-a-Phenomenon service provided information enabling callers to locate and observe artificial satellites as well as to identify celestial bodies.

The Special Events staff assisted in the planning, preparation, and coordination of approximately 600 events during fiscal 1974, including lectures, conferences, symposia, openings of exhibitions, press previews, concerts, luncheons, dinners, and receptions.

The staff participated in arrangements for tours for the new wife of the Secretary of State; the wives of visiting Latin American foreign ministers; the Empress of Iran and her three children; Prime Minister Tanaka of Japan; and, during the Festival of American Folklife, the Secretary of Labor, President of the AFL-CIO, and the mainland China mission to Washington.

Other events in which the staff participated were Mrs. Nixon's installation of the Department of the Interior's historic site plaque at the National Collection of Fine Arts National Portrait Gallery building's courtyard, Speaker Carl Albert's presentation of a portrait of himself, and Mrs. Johnson's presentation of a bust of President Johnson.

The Special Events staff was also responsible for arrangements when a group of Congressional wives honored Mrs. Gerald Ford in the Commons, with an evening of entertainment by the British Players. The Secretaries of Commerce and Treasury and the Director of the Environmental Protection Agency hosted parties and tours for several Soviet Union delegations; and the Secretary held the biennial Diplomatic Dinner at the Renwick Gallery for the heads of 18 foreign missions and a Fourth of July party for other diplomats on the terrace of the Museum of History and Technology to watch the Monument fireworks.

Improving public understanding of the work of academic specialists continued to serve as the goal of educational experiments of the Office of Seminars in 1974. Its privately supported programs reflect the spirit of the classic series *Smithsonian Contributions to Knowledge*, initiated by Secretary Joseph Henry in 1847. ("Knowledge should not be viewed as existing in isolated parts but as a whole, each portion of which throws light on all the other . . .") Mainly, the office prepares for publication — and otherwise helps disseminate, through seminars, symposia, television, and radio — the fruits of scholarly investigations and insights about the ideas, customs, skills, and art of various cultures and civilizations. It calls upon the Smithsonian's own talents and combines these with resources of other museums, the government, corporations, foundations, universities, research institutions, and professional societies.

*The Cultural Drama*, for example, was published in 1974. An illustrated collection of essays on modern identities and social ferment, the volume features an introduction by Secretary S. Dillon Ripley and a prologue calling for use of the American Bicentennial observance to celebrate cultural diversity and find a new national metaphor to replace "the melting pot." The Charles F. Kettering Foundation and the Rockefeller Brothers Fund provided support for the 1970 symposium out of which the book developed.

Also linked to the Bicentennial are plans started in 1974 for a symposium, "Kin and Communities: The Peopling of America," scheduled for May 1976 as a scholarly prelude to the Smithsonian Institution National Park Service Festival of American Folklife. The symposium is being organized in liaison with other units of the Smithsonian and in cooperation with the Department of History, American University, among other external organizations. Consultants include Dr. Robert Coles, psychiatrist, Harvard University; Eli Evans, author of *The Provincials*; Dr. Albert Gollin, Bureau of Social Science Research, Inc.; Dr. David Goslin, sociologist, National Academy of Sciences; Dr. Margaret Mead, American Museum of Natural History; and Allon Schoener, author of *Portal to America: The Lower East Side, 1870-1925*.





Margaret Mead, distinguished anthropologist and curator emeritus, American Museum of Natural History, discusses "New Initiatives in Environmental Renewal" at the Smithsonian's sixth seminar in its series on Voluntarism and the Public Interest in American Society as John Milton, Director, THRESHOLD International Center for Environmental Renewal (left) and Lee Talbot, Senior Scientist, Council on Environmental Quality, listen.



William H. Crocker, Associate Curator, Latin American Anthropology (left) and Wilton S. Dillon, Director of Seminars (right) receive artifacts presented to the Smithsonian by the Choco Indian Tribe, brought to the Institution by H. Morgan Smith, Arctic Desert Communications, Maxwell Air Force Base (center), who coordinates tribal participation in Air Force survival training programs.



Secretary Ripley's suggestion that the Smithsonian sponsor a Museum of the Family of Man to complete a chain of museums or exhibition centers on the Mall prompted a cooperative educational project involving the Smithsonian and the College of Architecture, Virginia Polytechnic Institute and State University, Blacksburg, Virginia. Seminars and interviews were organized for faculty and students to improve their knowledge of the workings of museums as preparation for their conceptualizing and designing a museum of mankind as a classroom exercise. Students' reports, sketches, construction models, videotapes, and other materials will be given to the Smithsonian.

"Voluntarism and the Public Interest in American Society," an invitational seminar series, continued into 1974 with future programs being planned in cooperation with the National Commission on Private Philanthropy and Public Needs headed by John Filer, chairman, Aetna Life and Casualty Company. Sponsored jointly with the Office of Development, the series spanned two years of twelve programs involving foundation officers, tax lawyers, government officials, scholars, and leaders of voluntary associations. *The Non-Profit Report*, *Museum News*, and *Foundation News* have published reports of the series. David L. Sills, editor of the *International Encyclopedia of Social Sciences*, serves as editorial consultant in planning an eventual volume of the papers and discussions. Speakers in 1974 included Margaret Mead leading a discussion on "New Initiatives in Environmental Renewal," Barry Commoner speaking on "The Scientist's Responsibility Toward a Society in Crisis," and participants in an all-day workshop on "What Can Be Done About the African Drought?"

"Innovation in Technology" is the theme of a two-part video taped seminar produced in 1974 by the Office of Seminars in cooperation with the National Academy of Engineering and the Exxon Corporation. Intended to stimulate classroom discussions in schools of management and engineering, as well as those in the humanities, the taped program included materials from engineers' presentations during the Copernicus symposium and subsequent commentaries by such interpreters of technology as Stephen Schwartz, Claire Nader, Don Walsh, Frank Piasecki, Robert Multhauf, and T. Dixon Long.

The office also continued to work closely with seminar and symposium planning of the Woodrow Wilson International Center for Scholars, the Hirshhorn Museum and Sculpture Garden, and the National Air and Space Museum.

The celebration of the quinentennial of the birth of Nicolaus Copernicus continued with the Office of Seminars assisting Professor Owen Gingerich in his editing of the forthcoming Smithsonian Press book *The Nature of Scientific Discovery*, based on the 1973 symposium; laying the groundwork in Warsaw for an eventual Polish-language edition to be published in cooperation with the Polish Academy of Sciences; cosponsoring with the Smithsonian's Division of Performing Arts a presentation at the Institution of Jerzy Grotowski, Poland's avant-garde actor-director; and distributing to science attachés in American embassies copies of the prize-winning Leonard Baskin Copernicus poster designed by Stephen Kraft. The London periodical *Encounter* and *The Bulletin of Atomic Scientists* have published essays contributed to the Gingerich volume by Werner Heisenberg and Gerald Holton. The Folger Shakespeare Library, in planning its 1974 Petrarch celebration, drew upon the Smithsonian's experience with Copernicus, and the office continued to work closely with the Copernicus Society of America in responding to numerous inquiries of scholarly and ethnic communities seeking information on Copernicus and Renaissance culture. Moreover, the office helped to facilitate new showings of Jacob Bronowski's BBC-Time-Life documentary film series *The Ascent of Man*, originally premiered in Washington during the Smithsonian-National Academy of Sciences observance of Copernicus Week.

### *Reading Is Fundamental, Inc.*

A new year and a new president began concurrently as Dr. Sidney Nelson assumed the presidency of Reading Is Fundamental, Inc., in August 1973.

By May 1, 1974, the number of active Reading Is Fundamental (RIF) programs (162) and developing programs (68) totaled 230. At the same time in 1973, this total was 139, of which 111 were active programs. These programs are all voluntary regional efforts



which call on RIF Headquarters for program guidance, but depend on their own resources for staffing funds. As a result of endorsement by their national organizations, American Association of University Women (AAUW) chapters now sponsor 24 local programs, and the Jaycees, 8. Without such a national imprimatur, local Junior Leagues sponsor 9 RIF programs — a marked increase over last year. Junior Women's Clubs sponsor 11 local RIF programs.

During fiscal 1974, a growing number of interracial and black service organizations took local RIF programs as their principal cause. These include the Alpha Kappa Alpha Sorority; Jack & Jill, Inc.; Negro Business and Professional Women; National Council of Negro Women; LINKS; the Urban League and Urban League Guilds.

Endorsement from the Office of Education has led to the support of 50 local programs — 25 under Title I and 25 Right-to-Read programs. The largest single program supported by federal funds (Emergency School Assistance Act) was the Brooklyn, New York, program involving 50,000 children in 100 schools in kindergarten through the third grade. Over 10,000 requests for RIF's services were received from throughout the United States as a result of an article which appeared in the February 1974 *Reader's Digest*, entitled "A Reading Program That Works."

Major activities of RIF's central office involved the preparation of a RIF handbook on starting and conducting a local RIF program in the field, a national workshop which brought together 56 project directors and staff from 15 states to share experiences and ideas, a broad gauge assessment of the number and character of local RIF programs, public education through a national public service advertising campaign, and the publication and distribution of a newsletter.

The major source of RIF's current support, a three year grant of \$1,150,000 from the Edna McConnell Clark Foundation, will terminate in 1975. With this in view, the Board of Directors under the able leadership of Mrs. Robert S. McNamara, initiated a four-year campaign to solicit funds from foundations, corporations, and interested individuals.

The Carnegie Corporation of New York agreed to fund a national evaluation of the impact of the Reading Is Fundamental program. The sum of \$106,655 was appropriated to the Graduate School and University Center of the City University of New York for this purpose.

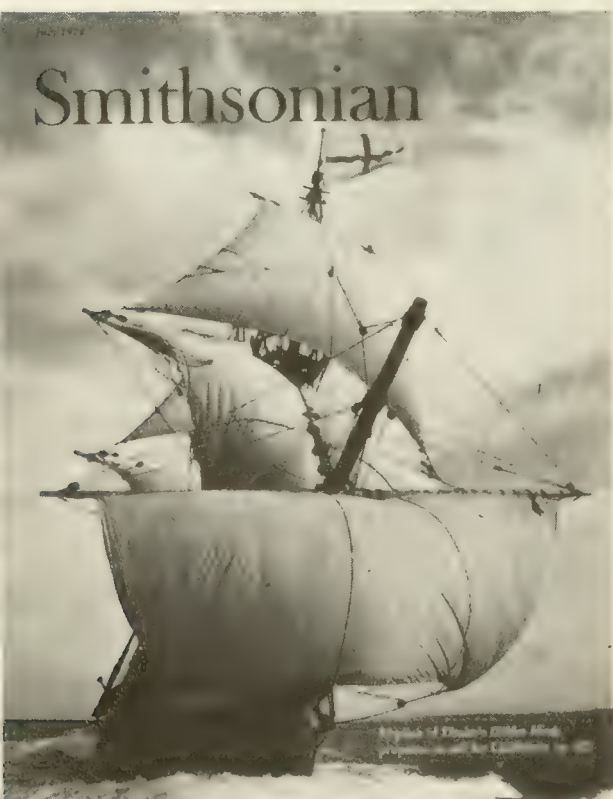




Linda Johnson Robb (left) and Julie Nixon Eisenhower examine some printed materials shown them by Dr. Sidney Nelson, President of Reading Is Fundamental, Inc.



Covers of three recent issues of *Smithsonian*.





A new expanded RIF program for the Capital was launched under the leadership of Mrs. Elliott L. Richardson and Mrs. Joseph J. Sisco. Funds for the program which will serve 30,000 children during the next three years have been provided by the Morris and Gwendolyn Cafritz Foundation, the Eugene and Agnes E. Meyer Foundation, the National Home Library Foundation, and the Hattie M. Strong Foundation.

## *Smithsonian Magazine*

It has been the aim of the magazine, *Smithsonian*, over the past 4 fiscal years to provide a publication — as a benefit for National and Resident members of Smithsonian Associates — which would be attractive to readers with a high educational level and to advertisers who deal in quality products. Everything seemed to come together in fiscal 1974.

When the magazine reached 600,000 net paid circulation, it found itself in an eminent position among the traditional “class” magazines, double the circulation of *American Heritage*, *Natural History*, *Harper's*, and *Atlantic Monthly*, and larger than *Scientific American* and the *New Yorker*.

During the year, the magazine was recognized as an important national publication by two major newsweeklies, *Time* and *Newsweek*, which took note of the magazine's success and heralded it for its editorial excellence. Most critics, in print and by word of mouth, praised the magazine for its variety, its writing, and the beauty of its illustrations.

*Smithsonian's* circulation increased 33 percent and its advertising revenue 85 percent in fiscal 1974 despite a softening of the economy. The magazine has carried a rich and varied selection of advertisements from major companies in the United States, as well as numerous travel and consumer goods offerings. A random sampling from one issue, for example, shows, among others, advertisements from Kodak, General Electric, General Motors, Bergstrom Paper, Hueblein, General Telephone and Electronics, Alcoa, National Distillers, Atlantic Richfield, Smith-Corona, Western Electric, Guerlain, Bethlehem Steel, Exxon, DeBeers, and Franklin Mint.



The editorial content itself dealt with the subjects of previous years: stronger and stronger articles on conservation and energy; treatments of museum spectaculars around the world in-depth — for example, the tapestry treasures at the Metropolitan and the beauty of Chinese art at the Musée du Petit Palais; stimulating articles on natural and hard sciences such as the mystery of the “black holes” in space, articles on Smithsonian gems and model planes, Japanese traditions, and the ivory-billed woodpecker. . . .

The magazine also continued to give candid and intimate views of history, especially American history. The series “America Two Hundred Years Ago,” a month-by-month narrative of the events preceding the American Revolution, became a nationwide favorite.

In *Smithsonian Year 1969* it was predicted that the magazine would pay its way in the third year of publication. The prophecy was correct — so accurate that in 1974 the magazine will make a significant contribution to the general operating funds of the private sector of the Institution.

At any given time it is, of course, impractical to predict future degrees of inflation and possible recessions, which will have to be faced. Certainly, production costs have been going up. However, one can predict confidently that, both with regard to the Institution and to the areas in which the Institution is interested, the editorial challenges will be met and the quality will continue to improve. And it is the policy of *Smithsonian's* management, both editorially and in the business areas, to remain flexible and resourceful.

### *Smithsonian Associates*

The Smithsonian Associates experienced an extraordinary growth this year in membership numbers and in program activities. National membership increased from 450,000 to 600,000. Resident membership grew from 15,000 at the end of fiscal year 1973 to 22,000 at the end of fiscal year 1974, representing 44,000 individuals in the Washington metropolitan area.

Heightened interest in Associate membership can be attributed to a number of factors, not the least of which is greater program visibility through the *Smithsonian* (magazine), the monthly *As-*



Robert Tuck shows a young student a live snake in Associates' amphibian and reptile course. Below: Charles Handley, Curator of the Division of Mammals, leads a workshop for students who learn how to dissect, stuff, and mount museum specimens.







Creative weaving on portable free looms constructed in class is demonstrated on the lawn outside the Castle by Ronald Goodman. *Below:* An attentive Associate rigs a sailboat he constructed in a Young Associates model sailboat class. Instructor Bertholdt Schmutzhart is at right.





sociate newsletter, the *Smithsonian Calendar of Events*, and continuous media coverage.

The publication of an all-purpose brochure describing the National and the Resident Associate programs has proved to be a useful tool to clarify the opportunities of each type of membership.

Cultural and educational programs of the Resident program include four semesters of classes a year, family events, symposia on provocative subjects, films, lectures, field trips, behind-the-scenes tours, and activities for young people. This year emphasis has switched from a few lecture classes in the arts, sciences, and humanities, with a multitude of crafts classes, to a balanced class program of over 65 classes per semester, with an average of 22 lecture classes for adults taught by Smithsonian and visiting scholars, studio classes, and children's classes. Average enrollment for these classes was 2300 per semester.

Children's activities and classes have expanded and participation has been stressed. The scholarship program that enables inner-city children to attend Young Associate classes reached a new high of 307 enrollees. This project was begun and funded by the Women's Committee of the Associates. Implementation of a "Family Events" page in the monthly newsletter expresses concern for and interest in family activities.

The number of day tours and overnight tours quadrupled. Special events increased from 45 to 86. Free events rose from 30 to 43 with attendance of 23,500.

Cooperation with divisions and bureaus within the Institution, and other cultural, educational, and civic organizations increased. For the first time the Resident Associate program conducted a Membership Workshop, attended by representatives of 23 museums from all over the country. Two programs received support from the National Endowment for the Arts. The scope of the film series and festivals increased. Four major film series and two festivals of prize-winning noncommercial films were held. Poetry readings by distinguished poets were added to the long list of program activities and many distinguished guests from outside the family of Smithsonian scholars and performers who gave lectures or led discussions.

The Resident program contributed over \$27,000 to the unrestricted private funds of the Institution without increasing dues or the prices of events. Especially popular this year were the Giants

of Contemporary Architecture class in which architects and architectural historians discussed outstanding masterpieces; Yehudi Menuhin's lecture on "Creativity" where Associates sat spellbound; Judith Crist's films of the seventies; Don a Hardhat, a tour of the Washington Metro subway system now under construction; and Shroeder loves Beethoven, a special Christmas party for Young Associates.

More than 750 Associates participated in 20 Domestic and Foreign Study Tours to such places as Georgia to study the culture of Indian moundbuilders; to Big Cypress Swamp in the Florida Everglades to study flora and fauna; and to Ethiopia and Kenya to study ancient and contemporary cultures. One particularly successful and exciting trip was a cruise to the lagoons and coast of Baja California in search of whales, sea elephants, and sea lions.

The Contributing membership, for individuals who donate \$50 or more annually, grew from 200 to 380 contributors. Added benefits for contributing members included a selection of exhibition catalogues and a reception to meet Brooke Hindle, new director of the National Museum of History and Technology.

At Christmas, the Women's Committee of the Smithsonian Associates sponsored their third successful Christmas Dance. The dance was staged around the African bush elephant in the National Museum of Natural History. Proceeds were given to the Insect Zoo, an exhibition of live insects, which the Committee has supported for 3 years, and to the scholarship fund of the Resident program. A larger portion of this year's proceeds will establish an experimental exhibit for handicapped visitors to the National Museum of Natural History.

The National Board of the Smithsonian Associates, a group composed of 26 industrial and citizen leaders, met in October 1973 and adopted a set of bylaws. The Board was largely responsible for stimulating corporate support to the Institution in excess of \$100,000 for fiscal year 1974.

One of the greatest services to the Institution is performed by the Associates Reception Center. Serving as the central visitor information office for Associates and for the public, the Center has greatly strengthened its ability to respond to increasing demands for informational assistance. Over 13,000 pieces of mail requesting





Kite Day, co-sponsored by the Resident Associate Program and the National Park Service, an annual happening on the Mall climaxes a three-session Kite Carnival including a lecture and workshop. Paul E. Garber (left), Historian Emeritus of the National Air and Space Museum, is the originator and beloved major domo of the event. (Photograph by Paul Feinberg)







Display featuring Smithsonian titles in the window of Brentano's Fifth Avenue store in New York.

everything from general information for visiting purposes to specific technical data were answered; 125,000 phone inquiries representing a 100-percent increase in traffic over the previous 12-month period were also channeled through the Center. Over 5000 Associate families from across the country registered in the Center's guest book — a figure which reflects only one-third of all the Associates actually seeking the Center's assistance.

Ninety additional information volunteers were recruited, trained, and scheduled by the Center, enabling double coverage at several information desks and the assumption of the additional responsibility of maintaining an information desk at the Renwick Gallery. The significance of voluntarism as an important Smithsonian resource was more widely recognized this year through an Institution-wide survey conducted by the Center. The survey found that 1120 volunteers contributed 105,000 hours of service, an equivalent of 77 man-years of labor worth \$914,000.

For the National membership, a comprehensive *Guide to the Nation's Capital and the Smithsonian Institution* was produced in cooperation with *Smithsonian* and appeared in the April issue as the magazine's first supplement.

### *Smithsonian Institution Press*

As the official publications arm of the Smithsonian, the Smithsonian Institution Press is responsible for the editing, design, production, and distribution of more than one hundred scholarly monographs, scientific reports, definitive art catalogues, and informational brochures each year. Although, in most cases, the Press staff does not do the actual writing, it does professionally assist its authors in all the necessary steps in editorial and design consultation while the manuscript is in preparation, in review of the final draft (including all illustrative material), in substantive editing, copy preparation for the printer, design, layout, paste-up, production supervision, and in delivery of the finished product to the author and to thousands of libraries, scholars, and members of an interested audience here in Washington and throughout the world.

The Press staff has taken satisfaction from its behind-the-scenes share in the laudatory reviews which have appeared in respected



journals, together with praise from the academic community, for Smithsonian publications issued during the year — notable among which were *Continental Drift*, by Ursula Marvin of the Smithsonian Astrophysical Observatory, and *The Papers of Joseph Henry*, edited by Nathan Reingold.

There are times, too, when honors redound more directly to the work of the Press staff. This has been such a year. At the eleventh annual blue pencil awards presentation of the Federal Editors Association the Smithsonian Institution Press won 6 editorial awards — more than any agency or department of the United States Government. The awards were presented to Louise Heskett for the *Black Presence in the Era of the American Revolution 1770-1800* by Sidney Kaplan (National Portrait Gallery); Nancy L. Powars for *Windows in the Sea* by Marion Clayton Link (Fort Pierce Bureau); Joan B. Horn for *Report of the Mohawk-Hudson Area Survey* edited by Robert M. Vogel (National Museum of History and Technology); Louise Heskett for *Air Traffic Control: The Uncrowded Sky* by Glen A. Gilbert (National Air and Space Museum); Ernest E. Biebighauser for *Continental Drift: The Evolution of a Concept* by Ursula B. Marvin (Smithsonian Astrophysical Observatory); and to John S. Lea for *Form and Fire: Natzler Ceramics 1939-1972* by Otto Natzler (National Collection of Fine Arts-Renwick Gallery).

Louise Heskett was the recipient of the first Editor-of-the-Year award made by the Federal Editors Association.

Careful editing must be wedded to good design before a manuscript can be sent to the printer, and the Press' dedicated design staff has also been honored during the year. In the 1974 annual exhibit of the Art Directors Club of Metropolitan Washington, which embraces both governmental and commercial graphic design, Stephen J. Kraft was awarded the Gold Medal for *Steinberg at the Smithsonian* (National Collection of Fine Arts), and also received Awards of Merit for *President Monroe's Message* (National Portrait Gallery) and *Nicholas Copernicus* (Office of Seminars). *Shaker* (National Collection of Fine Arts-Renwick Gallery), designed by Crimilda Pontes, has been chosen by the Association of American University Presses for excellence of design and production. It will be on display at major universities throughout this country and, under



the sponsorship of the United States Information Agency, in 26 countries abroad.

The Press' major effort in fiscal 1974 has been in marketing and distribution, where exciting new programs for reaching a much broader audience for Smithsonian publications — both Federal and private — have been developed. Cooperating in these efforts are the American Library Association, Xerox University Microfilm, Microfilming Corporation of America, the Superintendent of Documents, and some of the country's leading bookstore chains.

During the year, production costs of 124 publications were funded by Federal appropriations in the amount of \$358,000; 7 trade publications were supported wholly by Smithsonian private funds in the amount of \$105,700. The Press and the Superintendent of Documents shipped, on order and subscriptions, a total of 157,410 publications and 386 records. In addition, 1,506,972 art catalogues, brochures, leaflets, and miscellaneous items were distributed.

A full list of Smithsonian Institution Press publications for fiscal year 1974 may be found in Appendix 7.



Secretary Ripley and David L. Wolper sign contract for cooperative production of an upcoming series of major prime-time television specials, based upon the activities of the Smithsonian Institution.

## ADMINISTRATIVE MANAGEMENT

THE SMOOTH OPERATION of a vast institution such as the Smithsonian depends in large measure on its administrative management. The Smithsonian Institution — so viable in the civilizing process — must have a firm basic administrative structure that is far-seeing yet efficient and reliable, if it is to fulfill its well-known mandate not only to disseminate knowledge but to increase knowledge. The reports which follow concerning the Smithsonian's Support Activities, Financial Services, Office of Audits, and International Exchange Service recount an impressive array of activities in fiscal year 1974.

### *Support Activities*

To augment his immediate staff of one Administrative Officer, the Director of Support Activities filled two other positions during the year, a Special Assistant for programming and budgeting activities, and a Programs Manager for special projects such as Smithsonian-wide programs in energy conservation, environmental protection, and employee/visitor parking.

The Smithsonian's justification in the fiscal year 1975 budget request for additional support resources was well received. This important recognition stems from the program and priorities approach developed during the conference at Belmont in February of last year. Support activities across the Institution are moving forward in terms of obtaining more resources as well as in terms of redefining responsibilities of bureau directors for various support services provided in their respective buildings. Though this is encouraging, it is realized that the Institution still has some distance to go in



achieving its objective to provide quality support for all programs.

Many plans for Bicentennial requirements were completed during the year, and support was given to some programs already under way. Essential additional resources will be sought in the next budget cycle, the last opportunity to obtain adequate logistical support to carry through the Bicentennial programs.

Brief summaries of the major activities of the organizations in the central support group are given below.

#### INFORMATION SYSTEMS DIVISION

Information Systems Division develops and coordinates the use of automatic data processing support throughout the Institution. Advances continued to be made through computer utilization in the areas of administration, management of the national collections, and scientific research. Research was conducted in optical character recognition for entering data directly from a printed page, terminal devices to enable telephone communication with the computer, and computer output to microfilm and microfiche, as well as plotted maps and other graphic presentations.

Individual research assistance to curators and scientists expanded and broadened in scope as the Division made available additional mathematical techniques and software packages. New developments and refinements enhanced support for the management of the national collections in history, art, and science. A recently developed, but not yet completed, generalized information management package called SELGEM has aroused much attention within and outside the Institution because of its potential as a standard for the computerized management of collections. The Division publishes information about the SELGEM system in its technical bulletin, *Smithsonian Institution Information Systems Innovations*. The "Innovations" series acquaints the reader with automated systems and procedures specifically designed to solve collection and research problems in museums and herbaria.

#### MANAGEMENT ANALYSIS OFFICE

The three major responsibilities of the Management Analysis Office (MAO) are: providing management advisory and analysis services; making comprehensive reviews of proposed management issuances

and coordinating their publication; and administering a forms management program.

In the first three quarters of the year, over 75 individual staff analyses and studies were completed, the majority of which culminated in management issuances covering new or revised policies and procedures on a variety of subjects.

In this same period, the Forms Management Section provided service to over 84 units of the Smithsonian. Unavoidable delays occurred in the implementation of the ADP program developed to support the management and control of Smithsonian forms. It is hoped that this program will be in successful operation by the third quarter of the forthcoming fiscal year.

In March, MAO acquired Videotype (word processing) equipment with which Smithsonian's management issuances and other administrative documents can be prepared more efficiently and faster. This new technological development in the field of automatic typing can enhance not only MAO's productivity but also that of the Institution as a whole.

#### *OFFICE OF EQUAL OPPORTUNITY*

Progress in the Smithsonian Institution's Equal Employment Opportunity Program continued. Compliance with the complaints program was outstanding as complaints were processed without delay. The precomplaint counseling program, established in late 1972, functioned effectively. Of the more than 150 employees counseled, 9 formal complaints were filed and 8 were investigated. Of these 8, 2 were adjusted satisfactorily. Only 1 complaint proceeded to a hearing. The number of employees counseled, compared with those who filed formal complaints, demonstrates graphically the value of the complaints system.

A Sixteen-Point Program Coordinator was appointed and trained, and Upward Mobility Programs were implemented in the National Museum of Natural History and the Office of Plant Services.

The first member of a minority in a supergrade was appointed Assistant Secretary for Public Service and member of the Secretary's Executive Committee.

The Office of Personnel Administration's training course, "The Supervisor's Role in EEO," established last year, continued. Over

105 on-board and new supervisors have received this training, and others will be scheduled to attend the monthly sessions. Eventually all Smithsonian supervisors will take this course.

The Women's Program evolved successfully. Bylaws were approved for the Women's Council; Council membership increased from 9 to 15; and Smithsonian's Women's Week, held for the first time in October 1973, will be an annual event.

#### *OFFICE OF FACILITIES PLANNING AND ENGINEERING SERVICES*

The 1973 Priorities Conference at Belmont set forth the "need for support activities to be organized and motivated to provide the best delivery of services to the program units and their managers." In addition, the conference discussions focused on the "creation of better Institutional and bureau administrative awareness to accommodate anticipated future growth as a requirement." Thus, based upon the theme of the conference and succeeding executive determinations, the Office of Facilities Planning and Engineering Services (OFPEs) was established on October 26, 1973.

OFPEs serves the Smithsonian by providing professional advice and counsel to the Secretary, Executive Committee, and Bureau Directors on matters pertaining to new construction and development of the physical plant. Operational services furnished by OFPEs include: (1) facilities planning and architectural review, (2) engineering and design development, and (3) construction contract management and cost evaluation. Projects planned, developed, and managed by OFPEs are accomplished primarily through the contract and procurement cycle, requiring extensive technical analysis and preparation of detailed plans, drawings, and specifications to attain maximum dollar return. During the year, OFPEs processed, reviewed, managed, or provided assistance for new construction projects for the Institution totaling \$65 million. In addition, projects of an alteration, improvement, or restoration-renovation nature in the scope of OFPEs' activities during fiscal year 1974 entailed the expenditure of \$5.5 million.

The more significant new construction projects in progress or completed during the year were: the National Air and Space Museum, scheduled for completion in fiscal 1976; the Hirshhorn



Museum and Sculpture Garden due to be completed early in fiscal year 1975; storage and program facilities at the Silver Hill complex; decking ranges in the Arts and Industries building to provide additional square footage; and the Exhibit Design and Production Laboratory at the Anacostia Neighborhood Museum. Major alteration, improvement, or restoration-renovation projects either initiated or completed during the year were: Arts and Industries building restoration and central air conditioning; Center for the Study of Man administrative area; renovation of the third floor and the Seventh Street corridor and air conditioning for the Fine Arts and Portrait Galleries; escalators for the Natural History building; and numerous other projects involving various galleries, exhibit areas, and special-purpose spaces for all major museums. OPFES also processed approximately 75 construction-oriented projects, with the load projected to increase significantly during the coming years. In addition to specific projects completed during the year, OPFES contributed to the long-range project-development program, particularly in the development and design areas, including the Museum Support Facility, Nation of Nations exhibit, Bicentennial planning, South Yard development, and the Jefferson Island bulkhead project.

#### *OFFICE OF PERSONNEL ADMINISTRATION*

Among the services provided by the Office of Personnel Administration are manpower analysis, recruitment and placement, compensation programs, training and career development, employee relations, labor-management relations, and special responsibilities in assuring equal opportunity. In addition, the Office bears responsibility for the implementation of new laws or policy, such as the Fair Labor Standards Act, Public Law 93-259.

Each of the major program areas experienced an increase in activity deriving from the general growth of the Institution. Active recruitment for new positions took place; a new, more formal, position-classification program was begun; position-management studies in the National Museum of Natural History were undertaken; and a number of employee problems were resolved. Upward mobility assistance to employees was provided in several of the museums through plans developed in conjunction with line managers. These plans were devised to maximize individual skills

through training, job design, and other techniques, with particular emphasis on releasing employees from dead end or otherwise unsatisfying jobs.

Other positive approaches were taken to serve both managers and employees, notably those efforts extended by the task force to implement the reorganization of the former Buildings Management Department. Here, techniques were used which attempted to bring together to the greatest extent possible the needs of the Institution with the interests of individual employees.

Labor-management relations continued to function in a healthy way. Negotiations to modify an existing agreement were begun in one bargaining unit, and consultations and meetings were carried out in all units according to public policy and specific contracts. The grievance procedure negotiated in the union contracts was utilized in several instances, as both labor and management became accustomed to joint problem solving.

Twelve top managers received extended, in-depth, executive-development training. Approximately 300 supervisors received in-house training in two courses, the first dealing with the dynamics of interpersonal relationships and the second with the role of the supervisor in equal employment opportunity. In addition, a survey of supervisory skills was undertaken in order to plan for future training needs.

#### *OFFICE OF PLANT SERVICES*

The Office of Plant Services was established in November 1973, following the restructuring of the former Buildings Management Department. The new office is responsible for maintenance and repair of the Smithsonian physical plant; operation of utilities systems; maintenance of communication, transportation, mail and messenger, and horticultural programs; grounds maintenance; and storage of the Smithsonian collections. It also is establishing and implementing standards of maintenance for the entire Institution.

The Crafts Services Division of the new office completed the following major projects during the year: restoring the fire-damaged Belmont Conference Center; constructing a new staff and public restaurant facility in the Fine Arts and Portrait Galleries; providing support to the Festival of American Folklife; completing modernization of the photographic laboratory, Arts and Industries



building; remodeling the Conservation Analytical Laboratory, History and Technology building; and installing a complete new lighting system in Building 10, Silver Hill Facility.

In late March, the Communications and Transportation Services Division was delegated the responsibility for the Smithsonian Mail and Messenger Service. Planning for the future of this major service was begun in April and is expected to result in better utilization of resources, more efficient use of monies, and higher level service to the user.

Plans to relocate the Automotive Equipment Repair Shop from Building 1 to Building 7 at Silver Hill were completed during the year. When the relocation is accomplished in late 1974, a higher level of productivity is anticipated through the use of a more suitable work area.

The Horticultural Services Division undertook a number of Bicentennial projects during 1974, including design of a Victorian Garden for the South Yard, design for plantings in the Arts and Industries Conservatory, a State flower and State tree project, and a nursery-greenhouse operation. A National Horticultural Advisory Committee of prominent horticulturists and botanical garden and arboretum directors was established to assist in long-range programming, planning, and evaluation of future horticultural operations of the Smithsonian.

For the Warehousing Services Division, the first priority in 1974 was the cleanup of existing warehousing problems in Building 3, Alexandria, Virginia, and at the Silver Hill Facility in Maryland. In addition to assisting in office moves, the Division has been identifying storage and service problems, and training personnel in proper management of storage facilities.

#### *OFFICE OF PRINTING AND PHOTOGRAPHIC SERVICES*

The Office of Printing and Photographic Services was established July 1, 1973, by combining the Photographic Services Division with the activities and personnel of the Smithsonian Institution Print Shop (Museum Branch, GPO) and the Duplicating Section. A color-processing facility was installed and, by September, is expected to be in full operation. The ADP production reporting system was activated and, as in 1973, the production of photographic materials increased greatly.



Again this year, the volume of photographic assignments increased. Approximately 4000 feet of movie film were taken of various Smithsonian special events and construction sites. In addition, millions of pieces of documentary materials remain to be microfilmed. Modern lighting equipment was installed in the History and Technology building studio. This improvement enhanced the Branch's capability to use special lighting techniques and effects for photographing accurately and artistically objects in the national collections.

A large project of 11,176 black-and-white prints was completed for the Bureau of Indian Affairs, Department of the Interior, and 5588 new film negatives were made. New equipment was obtained for the copy and printing sections. A new color section was established with the purchase and installation of color equipment in the Arts and Industries building laboratory which was renovated for this purpose.

To support the ADP program, new forms were developed for obtaining caption data from the scientists and curators. Now 9485 index cards are available for retrieving information, and the most popular subjects are filed and indexed by organization unit, subject matter, and key words. The Library Branch worked on 6900 requests, including retrievals, inquiries, captions, and negative numbers; 3900 feet of movie film were filed; and 980 negatives (4" x 5") of portraits and passports of Smithsonian officials are filed for ready reference.

More than 10,000 requests received from students, educators, scientists, and the general public were handled this year. In maximizing "the diffusion of knowledge" through the visual media, an all-out effort was initiated to produce "SI Aids for Educational and Cultural Enrichment." Initially, these will be in the form of slide/lectures for use in primary and secondary education. Staff members throughout the Institution and the Volunteer Ladies Committee of the Smithsonian Associates are participating actively in this program. In conjunction with the Smithsonian Museum Shops, slides in sleeves illustrating aircraft in the National Air and Space Museum and animals at the National Zoo were produced for sale. As the slide program expands in the future, objects from other Smithsonian museums will be included.



Examining Indian photographs from the National Anthropological Archives are Augustine Smith (left), a Laguna, and Lorraine Bigman, a Navajo, participants in a three-month program, exposing them to Smithsonian historical material relating to American Indians, as well as introducing them to library and archival training. This pilot program is jointly sponsored by the Cultural Studies Section of the Bureau of Indian Affairs and the Smithsonian's National Anthropological Archives and the Office of Academic Studies. (Photograph by Vincent P. Connolly)



The Office of Protection Services instituted daily safety and fire inspection tours and monthly fire equipment inspections. Prior to letting of contracts, the Health and Safety Division is reviewing all contemplated construction changes to consider safety and fire provisions for exits, lighting, floor surfaces, stairs, and ramps, and for fire detection/suppression needs.

The Smithsonian Institution was nominated for the President's Safety Award for 1973. The Smithsonian has been nominated 7 times for this coveted honor and has won it twice. The Award for 1972 was presented this year by Secretary of Labor Brennan on the President's behalf to Paul N. Perrot, Assistant Secretary for Museum Programs, who accepted for Secretary Ripley and the Smithsonian. This was in recognition of the reduction of Smithsonian's accident rate over a 3-year period and notably by 12 percent in 1971-1972. On March 5, 1974, Under Secretary Robert A. Brooks, in turn, presented the award to Richard L. Ault, Director of Support Activities.

During the year, 8 new exhibit halls requiring guard service were opened to the public. Guards were furnished for 186 special events held in various Smithsonian buildings. Among the prominent activities in which the guards participated were the visits of the President of Pakistan and the Empress of Iran. These participations included the security and escort of distinguished guests and the security activities of personnel present on the occasions.

During the year, 56 guard force personnel completed the basic security course including First Aid and Weapons Qualification and were commissioned as Special Policemen.

In October 1973, a special operational element designated as the Outpost Detachment was activated and given the protection responsibility for the Renwick Gallery, Anacostia Neighborhood Museum, and the facilities at Silver Hill, 24th Street, and Lamont Street. The desired objective of improving security at these outlying establishments is realized by the permanent assignment of personnel who make daily supervisory inspections of every location on each relief. The supervisors also are responsible for inspecting the quality of security at separate locations where protection is carried out privately by the occupants or by contract security agencies. As addi-



tional facilities are established that are not large enough to warrant activation of a new guard company, they too will be added to the Outpost Detachment's area of responsibility.

All first- and second-line supervisors have completed the equal employment opportunity supervisory training course. During the year, through reassignment and/or employment, 26 women were accepted for employment as security guards.

#### *SUPPLY DIVISION*

The Supply Division continued to experience increased procurement and contracting work loads primarily due to the general expansion of the Smithsonian Institution and its many related activities, and all indications point to future accelerated growth in both of these responsibilities.

The major procurements for the new Hirshhorn Museum and Sculpture Garden were accomplished during the year. Contracting is well under way for the special requirements and exhibits planned for the National Air and Space Museum which will open in 1976.

The Division also assumed responsibility for all construction contracted during the year, and its most significant accomplishment was the contract for major renovation of the Arts and Industries building which was in progress at year's end.

The Division continued to be an active participant in the acquisition of useful excess Government property to satisfy the needs of the Institution's many organization units. Excess property acquired this year was more than \$500,000.

#### *TRAVEL SERVICES OFFICE*

Again this year, the Travel Services Office (TSO) experienced growth in all its major activities; i.e., air and rail reservations booked were up 40 percent; travel itineraries issued up 30 percent; transportation requests prepared up 25 percent; and the cost of transportation purchased from appropriated and nonappropriated funds was some 40 percent higher than last year.

In addition to furnishing travel services, advisory services and detailed planning data were provided for the annual Festival of American Folklife, for national and international conferences, and for meetings and archeological expeditions in Yugoslavia, Israel, Egypt, and Greece.

Of particular interest this year was a Travel Seminar sponsored by the Accounting Division for administrative staff of the Smithsonian. At the request of the Chief Accountant, the Chief of ISO participated in the training sessions and explained the role of her office in providing travel services for official Smithsonian travelers.

During the year, a closer liaison had to be maintained with the airlines to accomplish increasingly complex travel performed for the Foreign Currency Program of the Office of International and Environmental Programs.

### *Financial Services*

The Treasurer has overall responsibility for the financial assets of the Smithsonian Institution. This includes the budgeting and accounting of federal appropriations, the fiscal administration of grants and contracts, and the monitoring of revenue-producing activities; further detail on these activities is given in the reports which follow on the Office of Programming and Budget, the Accounting Division, the Grants and Insurance Administration Division, and the Business Management Office.

Working closely with the Investment Policy Committee of the Board of Regents, the Treasurer oversees the management of the endowment funds of the Institution by three professional advisory firms, and is also responsible for the short-term investment of current funds excess to immediate operating needs. Details on these funds and the other financial resources of the Institution can be found in the Financial Report at the front of this volume.

#### *OFFICE OF PROGRAMMING AND BUDGET*

The Office of Programming and Budget participates in program planning for the Institution and, to carry out these plans, is responsible for the formulation, presentation, implementation, and review of operating and construction budgets of appropriated and nonappropriated funds. About \$100 million from many different sources were involved this year. Details on these sources and their use may be found in the Financial Report. The Office works in close association with all operating and managerial levels of the Institution.



During the year, the staff of seven persons engaged in the following activities. Detailed fiscal 1974 operating budgets and associated staffing plans for both federal and nonfederal funds were developed with some 75 individual organization units and programs. These ranged from the major museums and research laboratories to small service and staff offices. Subsequently, throughout the year, these budgets and plans were monitored and reviewed with the performing units to assure that program plans were accomplished within approved amounts. The uncertainty at the beginning of the year as to whether several legislated pay raises would be financed with supplemental appropriations required special efforts to assure the wisest application of financial resources.

Based on the decision reached at the February 1973 Belmont Conference on Goals and Priorities (in which the Office was heavily involved) that emphasis must be given to strengthening the support functions of the Institution, such as collections conservation and protection of buildings, the Office developed and presented to the President's Office of Management and Budget a completely revised format for the fiscal year 1975 budget. As compared with the traditional organizational unit presentation, the new format was programmatic in nature designed to show clearly the base capability and resource requirements of the support functions as well as the equally high priority of our Bicentennial Program commitments. This budget presentation was received very favorably by the Office of Management and Budget and resulted in the Smithsonian being allowed to seek substantial additional appropriations for these needs from the Congress. The Office of Programming and Budget prepared and submitted to the Congress budget justifications and supporting documentation and prepared for and participated in the budget hearings before the House and Senate Appropriation Committees. Similar work was carried out on the fiscal year 1974 pay supplemental appropriation.

At the same time, the Office of Programming and Budget developed a more formal system for planning and goal-setting by each Smithsonian organization unit — now required by the expansion of the Institution, by the increasingly decentralized nature of much of its activity, and by the growing complexity of administering its diversified organizations.



In addition to the above Institution-wide responsibilities, the Office of Programming and Budget also engaged in a number of special projects. It was involved intensively in the formulation and management review of fiscal years 1974 and 1975 budgets for the proposed Hillwood Museum. It developed a comprehensive Institution-wide exhibition plan, schedule, and budget. An inventory of Smithsonian buildings and facilities was prepared for the Board of Regents. Finally, the Office played major roles in the reorganizations of the Office of Exhibits and the Buildings Management Department.

#### *ACCOUNTING DIVISION*

The Accounting Division regularly handles and accounts for all funds of the Institution, both federal and nonfederal, including payrolls, payments for materials and services, and receipts from a great variety of sources, and in addition provides over 600 financial reports monthly to Institutional managers at unit and headquarters levels.

Continuing the accounting services improvement program during fiscal 1974, the Accounting Division staff initiated and, with the assistance of other offices, conducted seminars on time-keeping and payroll, procurement and payment procedures, travel and voucher-ing procedures, and financial reporting. These seminars were attended by 200 Smithsonian administrative personnel including officers, assistants, clerks, and secretaries. With the assistance of our computer specialists, the Accounting staff installed a key-to-disc data entry system to replace an inefficient card and paper tape system eliminating repetitious data processing and adding beneficial controls. The new system became operational May 1, 1974, with full implementation projected January 1, 1975. Additionally, installation in fiscal year 1974 of a new personnel time reporting procedure is also serving to speed and improve accuracy of payroll preparation.

#### *GRANTS AND INSURANCE ADMINISTRATION DIVISION*

The Grants and Insurance Administration Division is responsible for administration of gifts, grants, and contracts received by the Institution. In addition, this Division administers the Institution's risk management and insurance program. The Division provides administrative, management, and fiscal services to Smithsonian researchers and the business representatives of granting agencies, as

well as the controls necessary to assure that funds are expended in accordance with appropriate regulations and contract terms.

During the past year the Division has continued its excellent administration in the gift, grant, and contract area and at the same time has expanded its operations in the risk management and insurance area. This expansion has entailed the initiation of risk management surveys of various organizations and bureaus of the Smithsonian to identify risk and recommend ways of alleviating and protecting against such risks. In addition, collections insurance coverages throughout the Institution have been consolidated, resulting in reduced work loads and the saving of considerable funds through premium reductions.

#### *BUSINESS MANAGEMENT OFFICE*

In addition to having overall responsibility for the Museum Shops, the Product Development Program and the Belmont Conference Center, which are described below, the Business Management Office also advises other Smithsonian bureaus on the negotiation and monitoring of revenue-producing concessions and contracts. During the past year, for example, Business Management assisted on such diverse projects as the contracts for educational sound systems in the National Museum of Natural History and the Hirshhorn Museum, the competitive solicitation of food service and parking concessionaires for the new National Air and Space Museum, and the construction of a new restaurant in the National Collection of Fine Arts and National Portrait Gallery building. The efforts of this office are an important element in the improvement of the Institution's nonfederal resources.

#### *Museum Shops*

The past year was one of growth and change for the Museum Shops. For the first time sales climbed above \$2 million, and net income reached the quarter-million mark. More importantly, 1974 saw the laying of groundwork which will produce far greater benefits to our Museums and visitors in the future.

Recognizing that the Shops should provide a means for a visitor to extend his museum experience, selection and display of merchandise has been drastically changed to provide increased educational values and a greater reflection of the museum in which a shop is

located. A leading architectural firm with extensive museum experience was retained to redesign completely the main shop in the National Museum of History and Technology — a project scheduled for completion by December 1974.

A number of important organizational changes were also made, with each shop manager being delegated responsibility for a specific area. A new position of Controller was created to provide greater inventory control and reports for management guidance. The Display Department was reorganized, and a new position was created in the Buying Department.

### Product Development Program

The Product Development Program originated from efforts to improve the quality and relevance of items handled in the Museum Shops and as a means to bring to audiences other than the Smithsonian's Washington visitors the educational values of the Institution.

As a part of this program, Tonka Corporation — a leading U.S. toy manufacturer with whom an agreement has been in effect since 1972, and under which it will manufacture and sell, in close coordination with Smithsonian, a line of museum-related products — introduced in fiscal year 1974 a series of diorama kits with a Smithsonian theme. These hobby/craft products effectively enable the builder to recapture a moment in history by creating an entire scene. Each kit is accompanied by a 24-page booklet containing detailed information on the historical period.

Similar agreements were reached during fiscal 1974 with three additional corporations. The first of these was with the Fieldcrest Company, which is developing bedspreads, quilts, comforters, blankets, sheets, and towels based on designs found in the Smithsonian collection items. Its trade introduction in May was well received, and products will reach the market in the fall of 1974. Another agreement was with the Stieff Company for a line of silver and pewter reproductions. The third was with the F. Schumacher Company, a producer of decorative fabrics and wall coverings.

Fiscal year 1974 also saw the introduction of *Seeing the Smithsonian*, the official guidebook to the Institution, in four foreign languages — French, German, Japanese, and Spanish. Mr. Kenneth Rush, then Deputy Secretary of State, spoke at the introductory



ceremony. Due to the generosity of CBS/Publishing Group, the publisher of the guidebook, *Seeing the Smithsonian* is now available in braille at designated locations.

### Belmont Conference Center

The Belmont Conference Center, located between the District of Columbia and Baltimore near Interstate 95, provides an attractive, secluded, gracious, and exclusive retreat unusual in the Eastern Corridor. Its easy access to the Baltimore-Washington airports, as well as to automotive arteries, impresses upon its guests the enjoyable paradox of a rural setting with the conveniences of urban proximity but without its complexities. One of the major advantages of Belmont is its use by only one group at any one time; schedules are so arranged as to avoid the overlap and attendant discomforts often encountered in other conference centers and hotels. Since its opening in 1967, conference operations have been directed toward the needs of small groups which require a location unencumbered by the normal intrusions associated with offices. The 240-year-old manor house, with 365 surrounding acres of lawns, forests, and fields, provides a working retreat for the productive groups which keep returning to the Center.

Belmont can accommodate 24 in-house residents, with facilities for 10 to 12 additional guests, speakers, or observers for meals and meeting sessions. This limiting size factor ensures that each conference has the undivided and individual attention of the entire staff, as well as the opportunity for unusually close interaction within the meeting group itself. Of the 80 or so meetings which Belmont hosts in a year, approximately 60 percent are from federally-funded agencies; the balance includes those from foundations and other philanthropic organizations, professional, religious, and social groups, corporations and private industry, and universities and colleges.

### *Office of Audits*

During fiscal year 1974, the Office of Audits issued audit reports on the Anacostia Neighborhood Museum, the Smithsonian Research Foundation, the National Zoological Park, the Chesapeake Bay Center for Environmental Studies, Mail Management, the Mediterranean





Belmont Conference Center.





Marine Sorting Center, the Smithsonian Institution Press, the Travel Services Office, and the Smithsonian Tropical Research Institute. Audit recommendations made in these reports have resulted in improved management procedures and controls, sometimes pointing to potential dollar savings.

In addition, the Office of Audits completed various pre-award and post-audits of contracts, and closed out 26 foreign currency grants in the amount of \$1 million.

### *International Exchange Service*

The International Exchange Service is the one program bureau in the support activities group. In 1851, the Smithsonian Institution established the international exchange system to provide a means for exchanging current Smithsonian publications for the transactions and proceedings of institutions in other countries. Other learned bodies in the United States were allowed to participate by exchanging their publications with those of foreign organizations. This program has continued through the years and, by this method, many colleges, universities, scientific societies, and medical and dental libraries exchange their current and duplicate publications with similar organizations in other countries.

During the year, over 700,000 pounds of publications were received from more than 250 organizations in the United States for transmission through the Service to over 100 countries. Publications weighing approximately 500,000 pounds were forwarded by ocean freight to 38 exchange bureaus in 32 countries. Approximately 250,000 pounds of publications were mailed to the intended recipients in countries that do not have exchange bureaus.

Publications weighing approximately 90,000 pounds were received from exchange bureaus in other countries for distribution in the United States.

Over 700,000 official United States publications weighing approximately 350,000 pounds were received for 91 organizations in 62 countries in exchange for the official publications of those countries. The daily issues of the *Congressional Record* and the *Federal Register* were exchanged with 126 foreign libraries in 62 countries for the parliamentary journals of these countries.



## *Smithsonian Women's Council*

The Smithsonian Women's Council was established by the Secretary in 1972 to represent to the Smithsonian's leadership the concerns of women at the Institution regarding employment and related matters.

During its first full term of existence in 1973-1974, the Council undertook several major projects. Its Child-care Committee acted on indications from employees that employer child-care assistance was of concern to them and on the evidence that Smithsonian resources could make special contributions to the development and education of children in general through programs conducted for employees' children. Based on information from a wide variety of sources, the Women's Council prepared a proposal in the fall of 1973 for an experimental program, providing for hiring a specialist in child care and development programming. After an initial assignment of designing an information-exchange service for employees concerned with child care, the specialist would move on rapidly to the development and execution of a summer educational program for school-age children and finally the presentation of recommendations for the Smithsonian's future role in the care and education of its employees' children. Administrative and financial elements were settled during the following winter and in the late spring of 1974 recruiting for the position of Child-care Coordinator began. The Assistant Secretary for Public Service assumed overall responsibility for the program with assistance from an advisory board representing the Women's Council and the Offices of Museum Programs, Personnel Administration, Equal Opportunity, and the Treasurer.

Another Council committee, formed to study patterns of recruitment, employment, and promotion at the Smithsonian, analyzed the Smithsonian's Merit Promotion Program and the skills-file method currently in use in internal recruiting for clerical and secretarial positions and offered recommendations for elimination of inequities in these systems and improvement of their operation. The report and recommendations were submitted to the Directors of Personnel Administration and Equal Opportunity in April 1974.

Other committees of the Council have been and are engaged in widely varied activities. One conducted studies and analysis of the

Institution's Upward Mobility Program and submitted to Personnel Administration and Equal Opportunity recommendations for significant changes and expansion in that area. Another committee sponsored a lecture on "The Job Jungle" by career-development expert Alexander Methven, which drew 170 employees and guests. Yet another committee is developing plans for a rich variety of programs and exhibits to mark Women's Week in August 1974.



*Houses in Provence* (detail), by Paul Cézanne. National Gallery of Art, Washington, D.C., Collection of Mr. and Mrs. Paul Mellon (2655).



## NATIONAL GALLERY OF ART

J. CARTER BROWN, DIRECTOR

THE NATIONAL GALLERY OF ART, although formally established as a bureau of the Smithsonian Institution, is an autonomous and separately administered organization. It is governed by its own Board of Trustees, the statutory members of which are the Chief Justice of the United States, Chairman; the Secretary of State; the Secretary of the Treasury; and the Secretary of the Smithsonian Institution, all ex officio; and five general trustees. Paul Mellon continued as president of the Gallery and John Hay Whitney as vice president. The other general trustees continuing to serve were Dr. Franklin D. Murphy and Stoddard M. Stevens. In March 1974, Mr. Lessing J. Rosenwald resigned after ten years as a trustee; Mr. Carlisle H. Humelsine, President of Colonial Williamsburg, was elected to succeed him.

During the fiscal year 1974 the Gallery had over 1,263,690 visitors.

A number of important works of art were acquired. Of particular note were the paintings: Paul Cézanne's *Houses in Provence* and Paul Gauguin's *Te Pape Nave Nave*, gifts of Mr. and Mrs. Paul Mellon. The year was also noteworthy because of the acquisition of numerous and important sculptures including Pietro Tacca's *The Pistoia Crucifix*, Antonio Canova's *Hercules Slaying Lichas*, two works by Foggini: *Bacchus and Ariadne* and *Venus and Cupid*, and two highly significant twentieth-century works: Wilhelm Lehmbruck's *Seated Man* and Alberto Giacometti's *The Invisible Object*.

In the graphic arts the Gallery added 96 drawings, 306 etchings and 2,057 prints to its collections, with many outstanding works, spanning six centuries from *The Adoration of the Magi* by the

Master E S, to a comprehensive collection of the works of M. C. Escher.

Notable exhibitions held at the Gallery included: "Etchings by Rembrandt" and "Prints of the Italian Renaissance" (both continued from fiscal year 1973). "American Impressionist Painting," "Sixteenth Century Italian Drawings from the Collection of Janos Scholz," "American Art at Mid-Century I," "François Boucher in North American Collections: 100 Drawings," "Nineteenth-Century Sculpture" and "Recent Acquisitions and Promised Gifts: Sculpture, Drawings, Prints." A particularly innovative major exhibition was opened in May 1974, "African Art and Motion," which through the objects shown, video tape and recordings of ceremonial African dancers and music, presented an integrated experience in the culture of sixteen African countries.

The Gallery's multimedia education program, *Art and Man*, published in cooperation with Scholastic Magazines, Inc., reached 4,000 classrooms in every state of the country.

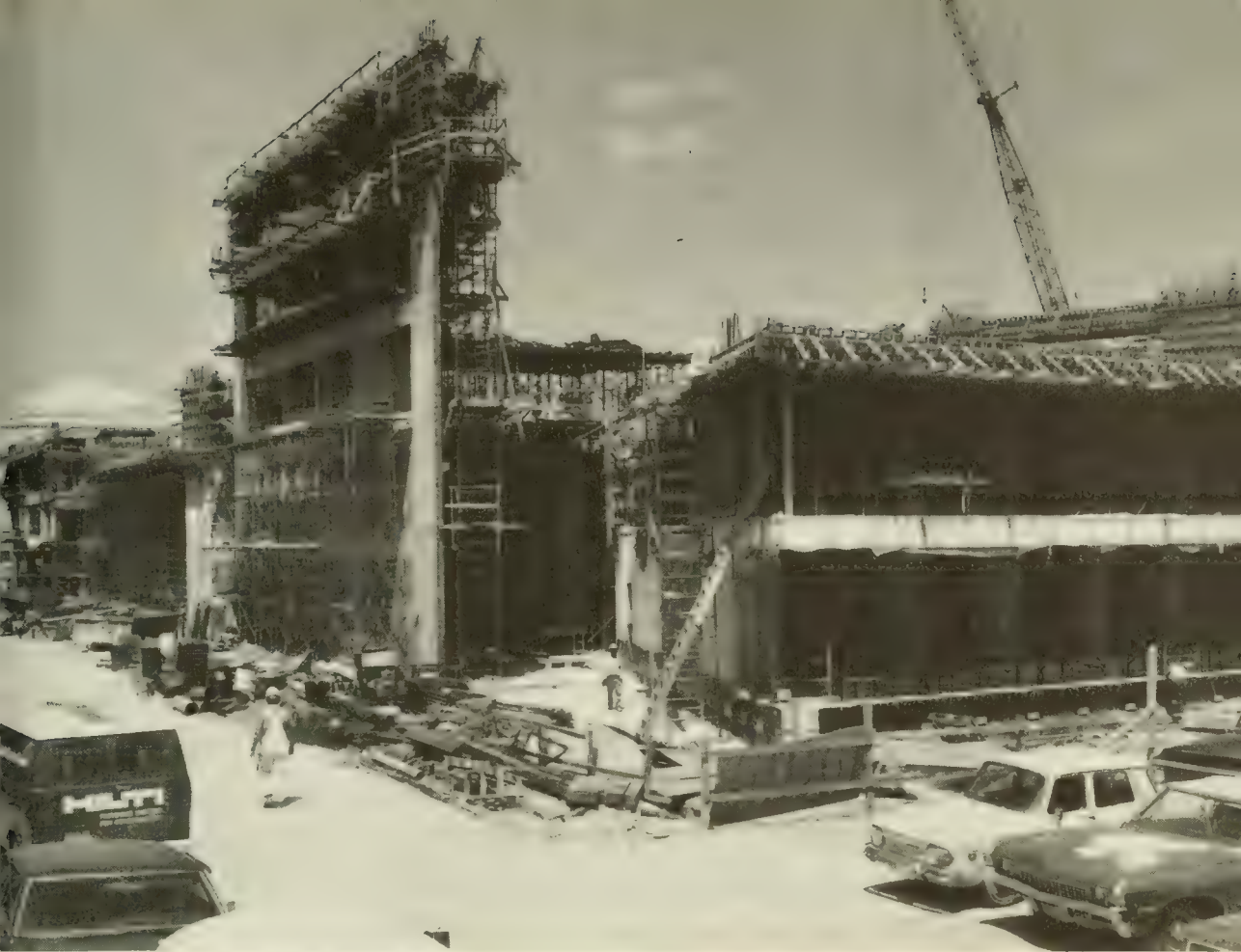
The total number of bookings of Extension Service materials, film strips, slide lectures, and films was 29,999. The total estimated attendance covering all 50 states and many foreign countries and United States military installations abroad was nearly five million.

Total attendance at talks given by the Gallery's Education Department and at the programs presented in the auditorium was 120,338. These included the regularly scheduled auditorium lectures and films, the Introduction to the Collection, the Tour of the Week, and Painting of the Week. There were 35 guest lecturers including the twenty-third annual A. W. Mellon Lecture in the Fine Arts, Professor H. W. Janson, who gave a series of six lectures entitled "Nineteenth-Century Sculpture Reconsidered"; and A. B. de Vries, Director Emeritus of the Mauritshuis (Royal Gallery of Paintings), the Kress Professor in Residence.

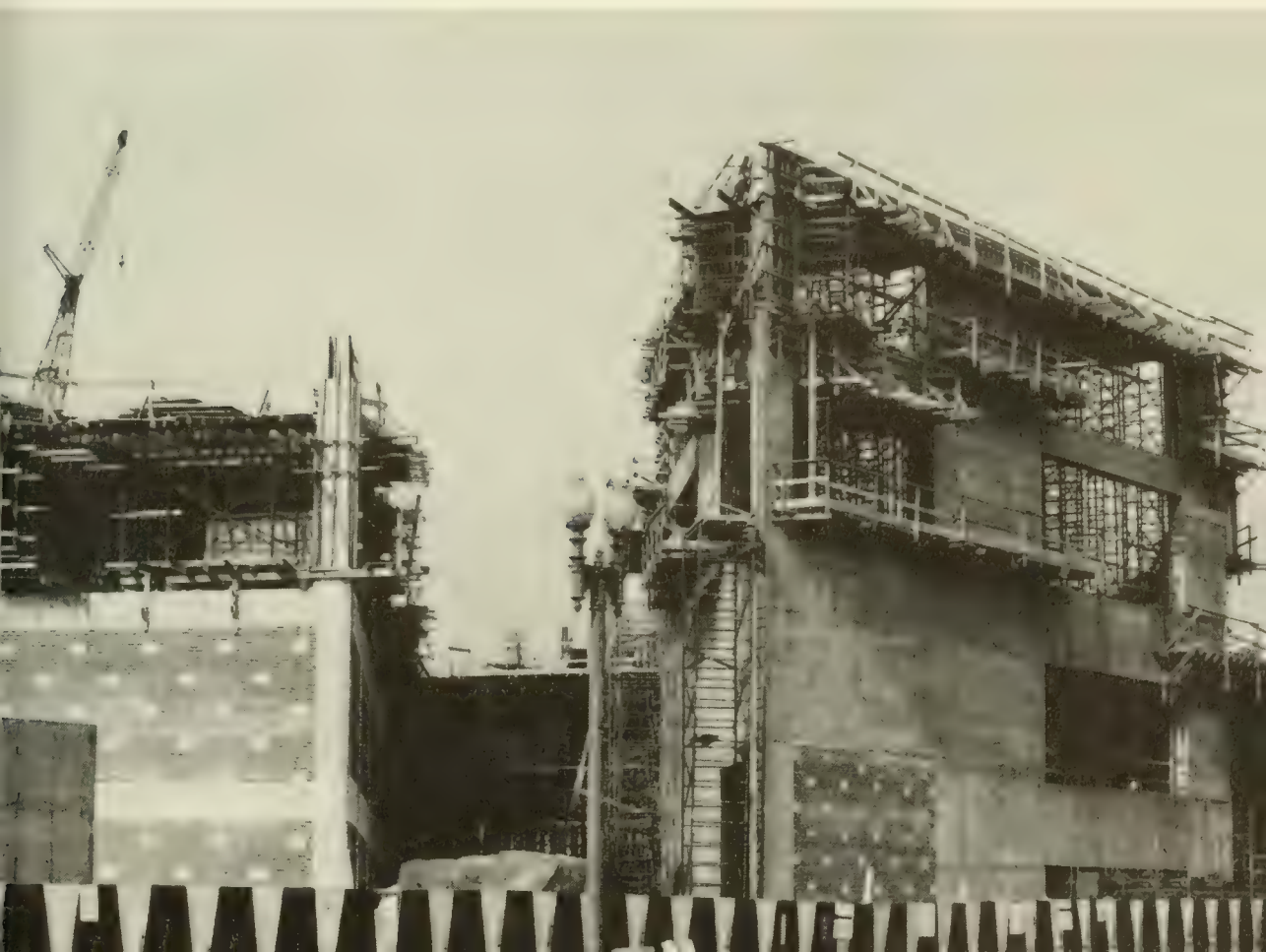
The newly recruited Conservation Department, working without the benefit of the expanded laboratory facilities still in the planning stage, concentrated on a survey of the Gallery's Northern European paintings with particular attention to those of Vermeer.

The Gallery's art research project at Carnegie-Mellon University in Pittsburgh neared its twenty-fifth anniversary and continued its work in nuclear methods of analysis and mass spectroscopy. Under





National Gallery of Art East Building and connecting link. now under construction. (Photograph by Stewart Bros. Photographers, Inc.) Below: Construction shown from Pennsylvania Avenue and Fourth Street.





a grant from the National Endowment for the Arts, matched by private donors, a three-year project was launched to produce a series of handbooks on the characterization and analysis of artists' pigments' sources and ages. Both projects are under the direction of Dr. Robert M. Feller.

In contrast to the previous year (1973), which saw much activity in terms of new staff, new acquisitions, and new procedures, the Library this year concentrated on stock-taking, classification and reclassification, inventory, and reorganization. The complete inventory is the first to be undertaken in the Library's thirty-three-year history. A total of 3,973 books and pamphlets were added to the collection, 2,070 purchased, 1,195 received as gifts, and 708 obtained via exchange; 74,128 new photographs were added to the Photographic Archives.

During the year the Gallery produced three exhibition catalogues on the *Sixteenth Century Italian Drawings from the Collection of Janos Scholz*, *François Boucher in North American Collections: 100 Drawings*, and *Recent Acquisitions: Sculpture, Drawings, Prints*. As an alternative to a catalogue for the "American Art at Mid-Century I" exhibition, a portfolio of thirty-three, 8" x 10" full-color reproductions with text was produced — a first for the National Gallery. Two posters were also produced for sale. Continued public interest in the Gallery's reproductions, postcards, and art books was evidenced by the patronage of 292,883 people in person and 8,736 by mail.

The Concert Programs continued with 40 Sunday evening concerts in the East Garden Court which were well attended and also broadcast live on a local AM-FM station.

The past year has seen the dramatic thrust of the East Building from the ground to levels ranging from the third to the sixth floor. In May the first exterior marble was set. Occupation and opening exhibits are planned for the summer of 1977.

Substantial progress was also made on the "Connecting Link" area between the East and West Buildings. A radically revised plaza design was developed, with glass tetrahedrons forming architectural sculpture on the plaza and serving as skylights for the concourse level below. This portion of the work, including an enlarged cafeteria, will be open to the public in the summer of 1976.

## TEMPORARY EXHIBITIONS AT THE GALLERY

American Glass: Watercolors from the Index of American Design

Continued from previous fiscal year through July 10, 1973

Etchings by Rembrandt

Continued from previous fiscal year through August 14, 1973

Prints of the Italian Renaissance

Continued from previous fiscal year through October 7, 1973

American Impressionist Painting

July 1 through August 26, 1973

Venetian Views: Etchings by Canaletto and Whistler

July 12 through December 26, 1973

Sixteenth Century Italian Drawings from the Collection of Janos Scholz

September 23 through November 25, 1973

American Art at Mid-Century I

October 28, 1973, through January 6, 1974

François Boucher in North American Collections: 100 Drawings

December 23, 1973, through March 17, 1974

American Textiles: Watercolors from the Index of American Design

December 26, 1973, through the end of the fiscal year

Nineteenth-Century Sculpture

March 10 through May 27, 1974

Art in the Age of Francesco Petrarca

April 6 to 13, 1974

African Art and Motion

May 5, 1974, through the end of the fiscal year

A Salute to Mozart: French Eighteenth Century Prints

May 9 to 29, 1974

Recent Acquisitions and Promised Gifts: Sculpture, Drawings, Prints

June 2, 1974, through the end of the fiscal year



Dramatic night photograph of the John F. Kennedy Center for the Performing Arts.



## JOHN F. KENNEDY CENTER FOR THE PERFORMING ARTS

ROGER L. STEVENS, CHAIRMAN

FACED WITH THE perennial challenge of surpassing previous efforts, the Kennedy Center opened its third season with an unprecedented four-week festival: Shakespeare and the Performing Arts. In keeping with basic philosophy that Center festivals must make an artistic statement of unique importance, the month-long celebration was designed to illustrate Shakespeare's profound influence on all aspects of the performing arts.

Utilizing virtually every part of the building, the festival included drama, dance, opera, symphony and chamber concerts, jazz, and film. The Center's unique structure, with four theaters under one roof, provided an extraordinary opportunity for comparative study, as, for example, *Macbeth* was presented in its traditional dramatic form in the Eisenhower Theater, while Verdi's operatic adaptation was simultaneously staged in the Opera House, and two different film interpretations were offered in the American Film Institute Theater. Similarly, readings from Shakespeare were coupled with stunning ballet passages they have inspired.

During a special opening salute, activity extended even beyond the walls of the Center, as Handel's *Water Music* was performed antiphonally by musicians on the river terrace and on a barge afloat the Potomac.

Participating in the festival were such outstanding performers as Dame Peggy Ashcroft, Sir Michael Redgrave, Maurice Evans, Zoe Caldwell, Christopher Plummer, Charlton Heston, Natalia Makarova, and Cleo Laine.

The artistic and popular success of the festival opening carried over and remained constant throughout the season that followed. Audience support surpassed all previous years as over 1.7 million people attended performances, and the vitality of the performing arts in Washington was graphically illustrated by the fact that the Opera House was in full operation for 50 weeks, the Eisenhower Theater for 52 weeks, and the Concert Hall for 52 weeks.

The season ultimately included: 125 performances of dance, by distinguished companies from around the world; 160 symphony concerts, including 129 by the resident National Symphony Orchestra; 42 performances of 15 operas; 37 recitals; 30 chamber concerts; 23 choral concerts; 44 concerts of popular music, folk, jazz, and rock; and 671 performances of drama and musical comedy.

In an expanded schedule, the Opera Society of Washington presented a total of five productions, including the American premiere of Monteverdi's *Il Ritorno D'Ulisse*, and the New York City Opera's annual spring visit featured performances of seven different works.

In addition to return engagements of the American Ballet Theatre and the National Ballet, the Center welcomed for the first time the New York City Ballet and Britain's Royal Ballet.

Theatrical highlights included a standing-room-only, post-Broadway engagement of Tennessee Williams' *A Streetcar Named Desire*, with Lois Nettleton and Alan Feinstein; shattering performances by Colleen Dewhurst and Jason Robards in Eugene O'Neill's *A Moon for the Misbegotten*, directed by Tony Award-winner Jose Quintero; Deborah Kerr's recreation of her London triumph in Frank Harvey's *The Day After the Fair*; David Turner's *The Prodigal Daughter*, starring Wilfred Hyde-White; Kate Reid's moving performance in Brian Friel's *The Freedom of the City*; Anthony Quayle's powerful portrayal of a contemporary Russian writer in Henry Denker's *The Headhunters*; the premiere of Erich Maria Remarque's *Full Circle*, directed by Otto Preminger; and Samuel Taylor's delightful comedy, *Perfect Pitch*, with Tammy Grimes and Jean-Pierre Aumont.

In a unique arrangement, and what is hoped will prove the first of many such examples of mutual cooperation between the Center and American colleges and universities, the entire cast of *The Headhunters* spent a week performing at the University of Tennessee, prior to opening in Washington. During their stay in Knoxville,

director-star Anthony Quayle and others associated with the production conducted a series of seminars and workshops which were open to the entire academic community. Of particular significance was the fact that students and faculty of the drama department were able to observe work on professional production, prior to its opening in their theater.

The most significant theatrical event of the season, and the Center's most ambitious undertaking since the 1971 opening of Leonard Bernstein's *Mass*, was the American premiere of Tom Stoppard's *Jumpers*. In a dazzling display, Stoppard combined both physical and philosophical gymnastics to produce one of the most literate and entertaining plays the theater has witnessed in the past decade. Directed by Peter Wood and starring Brian Bedford and Jill Clayburgh, *Jumpers* played the Eisenhower for an unprecedented eight weeks and went on to a limited Broadway engagement.

During the course of the season, the Center also presented a delightful series of musicals — including revivals of two classics: *The Pajama Game*, with Barbara McNair, Cab Calloway, and Hal Linden, and *Good News*, with Alice Faye and John Payne — Stephen Sondheim's award-winning *A Little Night Music*, and a highly successful engagement of *I Do! I Do!*, starring Carol Burnett and Rock Hudson.

Of particular artistic importance was the presentation in May of a three-week Mozart Festival, conceived and developed by the Center's Music Director, Julius Rudel. A series of 44 performances, 14 of which were free, illustrated the full range of Mozart's genius and featured both familiar works and lesser known, rarely performed selections. Highlighting the festival was the American premiere of a revised edition of the opera *Idomeneo*.

In a special community outreach, festival programming included a number of outstanding concerts at the Smithsonian and in area churches, and in conjunction with the Center's activities, the Music Critics Association conducted institutes dealing with Mozart authenticity, special Mozart performance problems, and Mozart opera.

The following month, in a dramatic three-century leap, the Center played host to *Art Now '74*, a celebration of contemporary American art and artists. *Art Now*, produced by the Artrend Foundation, utilized the entire roof terrace level and focused primarily upon performance and post-object art, stressing the most adven-





A free public performance by the Festival Winds during the Mozart Festival. (Photograph by Richard Braaten) Below: Isaac Stern and friends in the Kennedy Center Concert Hall. From left to right, Isaac Stern, Jaime Laredo, and Leonard Rose. (Photograph by Richard Braaten)



turous of current art trends. Interdisciplinary in nature, it included the visual arts, dance, music, video, film, theater, and works outside the realm of conventional classification.

Throughout the year, the Center's vitally important educational role expanded through the continued growth of the Alliance for Arts Education (AAE). The Alliance, a joint project of the Center and the Office of Education, Department of Health, Education and Welfare, was established in 1973, to make the Center's programs, facilities, and services more accessible to students as participants and performers; to stimulate, at local, state, and regional levels, quality programs in which all the arts are included as an integral part of the education of all students; and to establish the Center as a focal point for strengthening the arts in education at all levels.

With the support of representatives of the President's Advisory Committee on the Arts, the Friends of the Kennedy Center, and national, state, and local officials, the Alliance established committees in over 40 states. These state committees provide a forum and a communication center for arts and education organizations working to achieve the objectives of AAE programs. In the fall of 1973, a Center-hosted AAE conference provided a unique opportunity for significant exchange between educators and arts administrators from all 50 states.

As a part of an Alliance "showcase" series, several states presented outstanding representative educational programs at the Center during the spring. These included an appearance of the Golden Spike Youth Orchestra of Utah, a poets-in-the-schools project from New York, an exhibition of photographs and poems by Sioux Indian children of South Dakota, and a workshop on the arts for the mentally retarded. A total of 17 showcase activities are scheduled for the summer of 1974.

The sixth annual American College Theatre Festival, presented by the Center and the Smithsonian and produced by the American Theatre Association, brought ten of the Nation's finest college productions to the Eisenhower Theater during a two-week period in April. As a part of a new playwriting project, two original student works were among the productions staged.

In cooperation with the Music Educators National Conference, the AAE is developing plans for an American University Music Festival, to be similar in scope to the College Theatre Festival.



In addition to its AAE-oriented activities, the Center welcomed over 55,000 Washington-area school children to a series of special performances sponsored by the wives of Cabinet members and performing arts organizations within the city.

The ongoing Special Ticket Program enabled over 135,000 people to attend regular Center performances at half-price. The program, which is available to students, the handicapped, retired people living on fixed incomes, limited-income groups, and military personnel in grades E-1 through E-4, reflects the Center's concern that its performances be accessible to all, regardless of economic circumstances.

Under the chairmanship of Mrs. J. Willard Marriott, the 121-member President's Advisory Committee on the Arts continued to advise and assist in Center activities. During the year, the Advisory Committee was particularly active in fund-raising activities and in the development of the Alliance for Arts Education.

The Friends of the Kennedy Center, established as an auxiliary organization in 1966, grew to include over 10,000 members from all parts of the country. Volunteers from the Friends have generously contributed thousands of hours of time and effort, conducting public tours, managing souvenir stands, and providing hospitality and other services to Center operations and functions. Working closely with the National Park Service, the Friends have provided visitor services to over two million sightseers annually. Activities of the Friends are directed by Mrs. Polk Guest, who has served as chairman since 1967.

Charged by Congress with responsibility for maintaining the Center as a national memorial, the National Park Service has carried out vital maintenance, security, and information functions. The daily efforts of National Park Service personnel within the building and throughout the 17-acre site add immeasurably to the enjoyment of sightseers and theatergoers alike.

During its three years of operation, the Center has housed companies headed by universally recognized theatrical personalities as well as little-known college ensembles. Plays, operas, and ballets have been created and molded within its walls. As the fourth season approaches, with concrete plans and ambitious goals reaching well into the future, the Center and its role as a living memorial continue to evolve.



Although organizationally a bureau of the Smithsonian, the Center is administered separately by a 45-member Board of Trustees, composed of 30 members appointed by the President to ten-year overlapping terms, 9 members, ex officio, from pertinent Federal and District of Columbia agencies, 3 members appointed from the Senate, and 3 from the House of Representatives. Members of the Board at the close of fiscal year 1974 are as follows:

Roger L. Stevens, *Chairman*  
Richard Adler  
Ralph E. Becker  
Terrel H. Bell  
Mrs. Donna Stone Bradshaw  
J. Carter Brown  
Mrs. Edward F. Cox  
Ralph W. Ellison  
Mrs. J. Clifford Folger  
The Honorable Abe Fortas  
The Honorable Peter H. B.  
    Frelinghuysen  
The Honorable J. William Fulbright  
Mrs. George A. Garrett  
Leonard H. Goldenson  
H. R. Haldeman  
Mrs. Rebekah Harkness  
Mrs. Paul H. Hatch  
Frank N. Ikard  
The Honorable Edward M. Kennedy  
The Honorable Thomas H. Kuchel  
Gustave L. Levy  
Mrs. Michael J. Mansfield  
Mrs. J. Willard Marriott

Harry C. McPherson, Jr.  
George Meany  
Robert I. Millonzi  
The Honorable L. Quincy Mumford  
The Honorable Charles H. Percy  
The Honorable John Richardson, Jr.  
The Honorable S. Dillon Ripley  
The Honorable Teno Roncalio  
Arthur Schlesinger, Jr.  
Mrs. Jouett Shouse  
Mrs. Stephen E. Smith  
Henry Strong  
William Hammond Thomas  
The Honorable Frank Thompson, Jr.  
Benjamin Arthur Trustman  
The Honorable John V. Tunney  
Jack Valenti  
Ronald H. Walker  
The Honorable Walter E. Washington  
Lew R. Wasserman  
The Honorable Caspar W.  
    Weinberger  
Mrs. Jack Wrather



Library of the Woodrow Wilson International Center for Scholars  
with a conference in session.

WOODROW WILSON  
INTERNATIONAL CENTER  
FOR SCHOLARS

JAMES BILLINGTON, DIRECTOR

LATE IN 1968, the Congress determined that the official national memorial to the 28th President of the United States should be — uniquely among monuments to heads of state anywhere in the world so far as we are aware — a “living memorial.”

The Woodrow Wilson International Center for Scholars seeks to commemorate both the scholarly depth and the public concerns of Wilson through a program of advanced research and communication between the world of ideas and the world of affairs. Center activities and aims can be discussed in terms of the three basic ingredients of higher learning in a democracy: people, ideas, and communication — people who can think, ideas that matter, and communication that gets through.

PEOPLE

Finding and supporting the gifted individual to conduct research on subjects of fundamental importance is the primary concern of the Center. The majority of Center fellows are selected on the basis of open competitions, which are held twice yearly. Last year the program accommodated 48 fellows and 5 guest scholars from 14 countries. Since the Center commenced its activities three years ago, it has welcomed 118 fellows from 27 countries for ranging scholarly research, along with 34 shorter-term guest scholars. The Center has had almost as many foreign as American fellows — bringing them together in a small group of no more than 40 at any



given time. If the company and its perspective are global, the scale is human and the enterprise hopefully humane.

In its selection procedures the Center relies deeply on panels whose composition reflects the fact that higher scholarship in America is heavily concentrated in universities. Fellowships are not, however, confined to academics and are not designed for the perfection of narrow specialties or private languages. Any scholar with a major project in view that can make fruitful use of the rich resources of the Washington area is welcome to apply. Fellowships are awarded by three broad divisional panels: Natural Resources and Political Economy; Social Studies; and Historical and Cultural Studies.

### *IDEAS*

Since the Center is free from traditional academic calendars and departmental structures and deals only in free, individual research, the opportunities are rich for the imaginative and cross-disciplinary scholar and for a creative mix of specialties and backgrounds. The Center is attempting to encourage depth in its scholarship by focusing on the historical, philosophical, and comparative dimensions of questions that matter for civilization.

Much of the work at the Center has taken place in special subject areas within the broader scholarly divisions — research on patterns of sustainable economic growth and on the law of the sea and uses of the oceans within the division of natural resources and political economy, and studies of problems of the international order and the American system of government within the social studies division. Two new special programs in the latter division will bring (1) distinguished historians from abroad to work in Washington on the American Revolution as a world event, and (2) thoughtful practitioners from state and local governments in the United States to write a series of studies on the problems and prospects of the American federal system.

While there are clusters of scholars with such common interests, the unifying force within the Center is the common scholarly commitment of fellows, guest scholars, and senior staff alike to what Wilson himself once described as “the passionate search for dispassionate truth.”

Attempts to communicate between the world of ideas and the world of public affairs arise from the commission to serve as a "living memorial" to a President who bridged both worlds. The Center has the opportunity to perform a kind of switchboard function, making connections between the research materials of the Washington area, people at the Center, and the public sector in Washington.

On the basis of past experience and present assets, the Center has sought recently to encourage both *broadened dialogue* between scholarship and the public sector and *expanded use* of the unmatched scholarly resources of the Washington area. Evening dialogues, colloquia on work in progress, and occasional conferences are sponsored by the Center as ways of communicating scholarship within and beyond the Washington community — above and beyond the publishing of the scholarly writings undertaken and produced by Center fellows.





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APPENDIX 1. *Members of the Smithsonian Council, June 30, 1974*

**Dr. Roger D. Abrahams.** Chairman, Department of English, Professor of English and Anthropology, The University of Texas, Austin, Texas.

**Dr. H. Harvard Arnason.** Art Historian, River Road, Roxbury, Connecticut (Honorary Member).

**Professor George A. Bartholomew,** Department of Zoology, University of California, Los Angeles, California.

**Dr. Muriel M. Berman.** Civic, art, and college affairs, "20 Hundred" Nottingham Road, Allentown Pennsylvania (Honorary Member).

**Dr. Herman R. Branson.** President, Lincoln University, Pennsylvania (Honorary Member).

**Professor Archie F. Carr, Jr.** Department of Biology, University of Florida, Gainesville, Florida.

**Professor Carl W. Condit.** Center for Urban Affairs, Northwestern University, Evanston, Illinois.

**Mrs. Camille W. Cook.** Assistant Dean, University of Alabama School of Law, Alabama.

**Professor Fred R. Eggan.** Department of Anthropology, University of Chicago, Illinois.

**Dr. Donald S. Farner.** Chairman, Department of Zoology, University of Washington, Seattle, Washington (Honorary Member).

**Professor Anthony N. B. Garvan.** Chairman, Department of American Civilization, University of Pennsylvania, Philadelphia, Pennsylvania (Honorary Member).

**Dr. Murray Gell-Mann.** California Institute of Technology, Pasadena, California.

**Dr. Peter C. Goldmark.** Goldmark Communications Corporation, Stamford, Connecticut.

**Dr. Frank B. Golley.** Executive Director, Institute of Ecology, University of Georgia, Athens, Georgia.

**Dr. Philip Handler.** President, National Academy of Sciences, Washington, D.C.

**Dr. David Hawkins.** Director, Mountain View Center for Environmental Education, University of Colorado, Boulder, Colorado.

**Professor Nathan I. Huggins.** Department of History, Columbia University, New York City.

**Dr. Jan LaRue.** Director of Graduate Studies, Department of Music, New York University, New York City (Honorary Member).

**Dr. James L. Liverman.** Director, Division of Biomedical and Environmental Research, U. S. Atomic Energy Commission, Washington, D.C.

**Dr. Clifford L. Lord.** President, Hofstra University, Hempstead, New York (Honorary Member).

**Dr. Giles W. Mead.** Director, Los Angeles County, Museum of Natural History, Los Angeles, California.

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**Dr. Peter M. Millman.** Ontario, Canada (Honorary Member).

**Dr. Ruth Patrick.** Chairman of the Board, The Academy of Natural Sciences, Philadelphia, Pennsylvania.

**Professor Norman Holmes Pearson.** Department of English and American Studies, Yale University, New Haven, Connecticut.

**Dr. Gordon N. Ray.** President, John Simon Guggenheim Memorial Foundation, New York City.

**Mr. Philip C. Ritterbush.** Center for the Study of Popular Education and Recreation, Wallpack Village, New Jersey.

**Mr. Harold Rosenberg.** Art Critic, *New Yorker Magazine*, New York City.

**Mr. Andre Schiffrin.** Managing Director, Pantheon Books, New York City.

**Mr. George C. Seybold.** President, Museum of Fine Arts, Boston, Massachusetts (Honorary Member).

**Professor Cyril Stanley Smith.** Institute Professor, Massachusetts Institute of Technology, Cambridge, Massachusetts.

**Professor John D. Spikes.** Salt Lake City, Utah (Honorary Member).

**Professor Stephen E. Toulmin.** Professor in the Committee on Social Thought, University of Chicago, Chicago, Illinois.

**Mrs. Barbara W. Tuchman.** Author, New York City.

**Dr. William Von Arx.** Senior Scientist, Woods Hole Oceanographic Institution, Massachusetts.

**Professor Warren H. Wagner, Jr.** Ann Arbor, Michigan (Honorary Member).

**Dr. Rainer Zangerl.** Chairman, Department of Geology, Field Museum of Natural History, Chicago, Illinois (Honorary Member).



*SMITHSONIAN POSTDOCTORAL FELLOWS*

Smithsonian Fellows pursue research problems in Smithsonian facilities and collections in collaboration with professional staff members. Asterisks indicate Fellows whose research was supported through a grant for American Indian Studies awarded by the National Endowment for the Humanities for tenure at the Smithsonian Institution.

*Program in American and Cultural History*

**Helen L. Horowitz.** A study of American zoos as cultural institutions, with Dr. Lillian B. Miller, Department of History, National Portrait Gallery, from September 1, 1973, through December 31, 1973.

*Program in Anthropology*

**Juan R. Munizaga.** A study of physical anthropology of pre-Columbian populations, with Dr. Donald J. Ortner, Department of Anthropology, from August 15, 1973, through August 14, 1974.

**Douglas R. Parks.** A study of Pawnee-Arikara linguistics and ethnohistory, with Dr. John C. Ewers, Department of Anthropology, from August 1, 1973, through July 31, 1974.

**Katherine M. Weist.\*** Collection and initial analysis of the historical materials pertaining to the Indians of Montana, with Dr. William C. Sturtevant, Department of Anthropology, from September 1, 1973, through May 31, 1974.

**Thomas R. Wessel.\*** Investigation of the means by which the Bureau of Indian Affairs developed and implemented government policies under the Dawes Act, with Dr. John C. Ewers, Department of Anthropology, from September 1, 1973, through May 31, 1974.

**John E. Yellen.** Examination of archaeological and ethnographic materials from South Africa, with Dr. Clifford Evans, Department of Anthropology, from September 15, 1973, through January 31, 1975.

*Program in Astrophysics*

**Marie E. Hallam.** Development of a Lunar thermal evolution model, with Dr. John Wood, Smithsonian Astrophysical Observatory, from September 1, 1973, through August 31, 1974.

*Program in Earth Sciences*

**Aurelio De Gasparis.** Crystalline inclusions of ferromagnetic materials in tektites, with Dr. Brian H. Mason, Department of Mineral Sciences from January 1, 1974, through December 31, 1974.

**Anthony C. Onyeagocha.** Petrochemistry of the Galapagos volcanic rocks, with Dr. Thomas Simkin, Department of Mineral Sciences, from July 1, 1973, through June 30, 1974.

### *Program in Environmental Sciences*

**Ilan Golani.** Non-metric analysis of the display of the Tasmanian Devil through the use of movement notation, with Dr. John Eisenberg, National Zoological Park, from July 1, 1973, through June 30, 1974.

**Cornelis W. Raven.** Physiology of phytochrome-controlled reactions, with Dr. Walter A. Shropshire, Radiation Biology Laboratory, from September 1, 1973, through August 31, 1974.

**Tung-lin Wu.** A study of dissolved matter and organic matters in estuary environments, with Dr. Francis S. L. Williamson, Chesapeake Bay Center for Environmental Studies, from June 15, 1973, through June 14, 1974.

### *Program in Evolutionary and Systematic Biology*

**Ginter Ekis.** A study of systematics, natural history, and zoogeography of *Colyphus*, with Dr. Terry Erwin, Department of Entomology, from July 1, 1973, through June 30, 1974.

**Thomas H. Fraser.** Contributions toward a revision of the pantropical Cardinal Fish genus *Apogon*, with Dr. Ernest A. Lachner, Department of Vertebrate Zoology, from November 1, 1973, through October 31, 1974.

**Helen A. Kennedy.** Systematic study of New World generic relationships in Marantaceae, with Dr. Lyman B. Smith, Department of Botany, from January 1, 1974, through December 31, 1974.

**Frederick H. C. Hotchkiss.** A study of the phylogeny of the Asteroidea with Asteroids collected during the International Indian Ocean Expedition, with Dr. David L. Pawson, Department of Invertebrate Zoology, from October 15, 1973, through October 14, 1974.

**Heinz A. Kollmann.** A study of the paleobiology of Mesozoic Gastropods, with Dr. Erle G. Kauffman, Department of Paleobiology, from June 4, 1973, through June 3, 1974.

**Katherine S. Ralls.** A study of sexual dimorphism in antelopes, with Dr. Richard W. Thorington, Department of Vertebrate Zoology, from September 1, 1973, through August 31, 1974.

**Edgardo J. Romero.** A study of fossil angiosperm leaves by the leaf architectural method, with Dr. Leo J. Hickey, Department of Paleobiology, from February 1, 1974, through January 31, 1975.

**Adam Urbanek.** A study of the ultrastructure of invertebrates with organic skeletons, with Dr. Kenneth M. Towe, Department of Paleobiology, from September 1, 1973, through November 10, 1973.

### *Program in the History of Science and Technology*

**Elaine H. Koppelman.** The career of British mathematician, J. J. Sylvester, with Dr. Uta C. Merzbach, Department of Science and Technology, from September 1, 1973, through August 31, 1974.

**Michael M. Sokal.** Analytic and narrative biography of James McKeen Cattell, with Dr. Audrey B. Davis, Department of Science and Technology, from September 1, 1973, through August 31, 1974.

**Patricia S. Watlington.** A study of agriculture in early Kentucky, 1775-1820, with Dr. John T. Schlebecker, Department of Industries, from September 1, 1973, through August 31, 1974.

### *Program in Tropical Biology*

**Paul J. Campanella.** Study of evolution and diversity of mating strategies in New World tropical odonates, with Dr. Martin Moynihan, Smithsonian Tropical Research Institute, from November 1, 1973, through October 31, 1974.

**Donald L. Kramer.** A comparative study of food selection in some tropical fishes feeding on detritus and aufwuchs, with Dr. Martin Moynihan, Smithsonian Tropical Research Institute, from October 1, 1973, through September 30, 1974.

**Michael L. May.** A study of temperature responses of tropical dragonflies, with Dr. Michael H. Robinson, Smithsonian Tropical Research Institute, from January 1, 1974, through December 31, 1974.

**Robert R. Warner.** Field and laboratory analysis of the evolutionary and ecological significance of hermaphroditism, with Dr. Ira Rubinoff, Smithsonian Tropical Research Institute, from September 15, 1973, through September 14, 1974.

**Donald M. Windsor.** A study of the evolution of sociability in polybiine wasps, with Dr. Neal G. Smith, Smithsonian Tropical Research Institute, from September 1, 1973, through August 31, 1974.

### *SMITHSONIAN PREDOCTORAL FELLOWS*

#### *Program in American and Cultural History*

**Curtis M. Hinsley.** The science of man: anthropology in Washington, D.C., 1880-1910, with Dr. Nathan Reingold, Joseph Henry Papers, from July 1, 1973, through June 30, 1974.

**Eunice E. Mason.** Historical-cultural study of the West Indian immigrants to the Panama Canal Zone, with Dr. Roy Bryce-Laporte, Research Institute on Immigration and Ethnic Studies, from November 15, 1973, through November 14, 1974.

**Anne D. Shapiro.** Uses and performance practices in popular and folk music of 18th-century America, with Mrs. Cynthia Hoover, Department of Cultural History, from December 15, 1973, through December 14, 1974.

**Susan M. Strasser.** The effects of household technology on the roles of women in America, with Miss Rodris Roth, Department of Cultural History, from September 1, 1973, through August 31, 1974.

#### *Program in Anthropology*

**Robert S. Corruccini.** Research on variation in humanoid dentition and on variation between populations of Virginia Indians, with Dr. Donald J. Ortner, Department of Anthropology, from February 1, 1974, through January 31, 1975.



**Laura J. Greenberg.** Structural analysis of design, specifically Pueblo pottery patterns, with Dr. William C. Sturtevant, Department of Anthropology, from September 1, 1973, through August 31, 1974.

**Kiyoshi Yamaura.** A study of the Eskimo harpoon heads and their history, with Dr. William W. Fitzhugh, Department of Anthropology, from July 1, 1973, through June 30, 1974.

### *Program in Astrophysics*

**Thomas E. Cravens.** Study of atomic collisional processes of interest to astrophysics, with Dr. Alexander Dalgarno, Smithsonian Astrophysical Observatory, from September 1, 1973, through May 31, 1974.

**Jean W. Goad.** A spectroscopic study of the kinematics in the Sb galaxy M81, with Dr. Rudolph E. Schild, Smithsonian Astrophysical Observatory, from September 1, 1973, through May 31, 1974.

**Carlton R. Pennypacker.** Infrared search for pulsars and study of optical pulsars with Dr. Costas Papaliolios, Smithsonian Astrophysical Observatory, from September 1, 1973, through June 30, 1974.

**Kenneth P. Topka.** Theoretical and observational research in relativistic astrophysics, cosmology, stellar structure, evolution, and the interstellar medium, with Dr. Alexander Dalgarno, Smithsonian Astrophysical Observatory, from September 1, 1973, through May 31, 1974.

**William E. Wiesel.** Research on the statistics of the two-body and restricted three-body gravitational problems, with Dr. Myron Lecar, Smithsonian Astrophysical Observatory, from September 1, 1973, through May 31, 1974.

**Michael Zeilik.** Infrared astronomy of H II regions, with Dr. Giovanni Fazio, Smithsonian Astrophysical Observatory, from September 1, 1973, through June 30, 1974.

### *Program in Earth Sciences*

**William T. Potts.** A study of Palestinian early Bronze Age ceramics, composition, and technology, with Dr. William G. Melson, Department of Mineral Sciences, from September 1, 1973, through August 31, 1974.

### *Program in Evolutionary and Systematic Biology*

**Robert E. Dietz.** Study of biosystematics of the genus *Macrocneme* Hubner, with Dr. W. Donald Duckworth, Department of Entomology, from August 15, 1973, through February 14, 1974.

**Cynthia L. Lewis.** Study of reproduction and development in the Gooseneck Barnacle, *Pollicipes polymerus*, with Dr. Thomas E. Bowman, Department of Invertebrate Zoology, from July 1, 1973, through June 30, 1974.

**C. P. Sreemadhavan.** Study of leaf morphology in angiosperm systematics, with Dr. Leo J. Hickey, Department of Paleobiology, from September 1, 1973, through August 31, 1974.

**Robert E. Vorek.** Study of functional morphology of primate foot including osteometric and myological analysis of the feet of various members of the anthropoidea, with Dr. Richard W. Thorington, Department of Vertebrate Zoology, from August 1, 1973, through July 31, 1974.

**Bruce R. Wardlaw.** Study of biostratigraphy and paleoecology of the Gerster Formation (Upper Permian) in Nevada and Utah, with Dr. Richard E. Grant, Department of Paleobiology, from September 1, 1973, through May 31, 1974.

#### *Program in the History of Art*

**Karen M. Adams.** Study of the iconography of the Negro in 19th-century American painting and literature, with Dr. Lois M. Fink, National Collection of Fine Arts, from September 21, 1973, through September 20, 1974.

**Peter P. Morrin.** Study of the art, teaching, and theory of Hans Hofmann, with Dr. Lois M. Fink, National Collection of Fine Arts, from December 1, 1973, through July 31, 1974.

**Linda H. Skalet.** A study of the role of the private collector and collection in American art history, with Dr. Lois M. Fink, National Collection of Fine Arts, from January 1, 1974, through December 31, 1974.

**Roberta K. Tarbell.** A catalogue raisonné of the carved sculpture of William Zorach, with Dr. Lois M. Fink, National Collection of Fine Arts, from July 1, 1973, through June 30, 1974.

**Barbara B. Zabel.** A study of the impact of science and technology on modern art, 1900-1915, with Dr. Lois M. Fink, National Collection of Fine Arts, from September 1, 1973, through August 31, 1974.

**Judith K. Zilczer.** A study of the aftermath of the Armory Show; American art theory and criticism, 1913-1923, with Dr. Lois M. Fink, National Collection of Fine Arts, from August 1, 1973, through July 31, 1974.

#### *Program in the History of Science and Technology*

**Saroj K. Ghose.** A study of the introduction and development of the electric telegraph in India, with Dr. Bernard S. Finn, Department of Science and Technology, from July 1, 1973, through June 30, 1974.

**Paul A. Hanle.** A study of the origins of and influences on the early statistical physics research of Erwin Schrodinger, 1910-1925, with Dr. Paul Forman, Department of Science and Technology, from September 1, 1973, through August 31, 1974.

#### *SMITHSONIAN GRADUATE AND UNDERGRADUATE RESEARCH AND STUDY APPOINTMENTS*

Asterisks indicate students whose research was supported by Grant GY-10578 from the National Science Foundation's Undergraduate Research Participation Program.

#### *Program in American and Cultural History*

**Russel W. Chamberlayne,** George Washington University. General survey of museum textile handling and research methods, with Mrs. Rita Adrosko, National Museum of History and Technology.

**Sandra K. Lund,** Gallaudet College. General archival studies, with Mr. Richard Lytle, Smithsonian Archives.

**Gerald J. Rosenzweig,** Gallaudet College. General archival studies, with Mr. Richard Lytle, Smithsonian Archives.

### *Program in Anthropology*

**Lorraine Bigman**, Navajo Community College, Arizona. General anthropological archival studies, with Dr. Herman Viola, National Museum of Natural History.

**Katherine M. Condliffe**, George Washington University. Analysis of Bushman camps, with Dr. John Yellen, National Museum of Natural History.

**J. Richard Haefer**, University of Illinois. Study of Plains Indians musical instruments, with Dr. John Ewers, National Museum of Natural History.

**Afifa Hassan**, Southern Methodist University. Studies on bone material using X-ray electron microscope and microprobe, with Dr. Donald Ortner, National Museum of Natural History.

**David Kiyaga-Mulindwa**, Johns Hopkins University. Correlation of linguistic, archaeological, ethnographic, and oral data in reconstructing the Iron Age cultures of East and Central Africa, with Dr. Gordon Gibson, National Museum of Natural History.

**Joseph M. Konno**, Rider College, New Jersey. A study of Puluwatan navigational lore, with Dr. Saul Riesenbergs, National Museum of Natural History.

**James H. Nottage**, University of Wyoming. Study of Plains Indians material culture, with Dr. William Sturtevant, National Museum of Natural History.

**Peter W. Ochs**, Jewish Theological Seminary. Transcription and analysis of Puluwatan oral navigational lore, with Dr. Saul Riesenbergs, National Museum of Natural History.

**Arlyn H. Sharpe**, University of Maryland. Studies in the ethnographic collection, with Dr. Eugene Knez, National Museum of Natural History.

**Augustine Smith**, Navajo Community College, Arizona. General anthropological archival studies, with Dr. Herman Viola, National Museum of Natural History.

**Deborah R. Van Brunt**, Yale University. Project on North American Indians, with Dr. William Sturtevant, National Museum of Natural History.

### *Program in Earth Sciences*

**Katherine DuVivier**, Williams College. Project to develop an experimental touch exhibit, with Dr. Harold Banks, National Museum of Natural History.

**Lana M. Everett**,\* Swarthmore College. Bibliographic cataloguing for Charles Darwin Foundation and also Galapagos Islands research, with Dr. Thomas Simkin, National Museum of Natural History.

**Lee M. Gray**,\* Colgate University. Classification of Permian brachiopods from Pakistan, with Dr. Richard Grant, National Museum of Natural History.

**Bonnie B. Robinson**,\* Oberlin College. Petrological study of historic lavas from Cascade Mountains to South America, with Dr. James Powell, National Museum of Natural History.

**Jo Ann Rosenfeld**,\* Johns Hopkins Medical School. Study of fossil marine mammals with Dr. Clayton Ray, National Museum of Natural History.



### *Program in Biology*

**Trudie L. Blackwell**, Clemson University. Study of zoo animal medical procedures, with Dr. Clinton Gray, National Zoological Park.

**Fred B. Blood**, Virginia Commonwealth University. Study of Unionid fauna of Atlantic Central Virginia, with Dr. Joseph Morrison, National Museum of Natural History.

**Philip D. Perkins**, University of Maryland. Study of taxonomy of larval stages of Hydrophilidae and Hydraenidae, with Dr. Paul Spangler, National Museum of Natural History.

**Marceile B. Riddick**, Virginia Commonwealth University. Collection of fresh water mussels in Virginia, with Dr. Joseph Morrison, National Museum of Natural History.

### *Program in the History of Science and Technology*

**Roy S. Klein**, Case Western Reserve University. Study of the development of American steel industry using the Smithsonian's Alexander Holley drawings, with Dr. Otto Mayr, National Museum of History and Technology.

**Elizabeth C. Luebbert**, Wellesley College. Work on the Computer History Project, with Mr. Henry S. Tropp, National Museum of History and Technology.

**Anne M. Millbrooke**, Boise State College. Processing and handling materials associated with the Joseph Henry Papers, with Dr. Nathan Reingold, Joseph Henry Papers.

**Patricia A. Mooney**, University of Cincinnati. Study with the Joseph Henry Papers, with Dr. Nathan Reingold, Joseph Henry Papers.

**Robert Rosecrans**, Yale University. Research into the origins of pediatrics as a speciality in the United States at the turn of the 20th century, with Dr. Audrey Davis, National Museum of History and Technology.

**Janet E. Surkin**, University of California. Research for the Joseph Henry Papers, with Dr. Nathan Reingold, Joseph Henry Papers.

### *Program for Museum Interns*

This program is supported by a grant from the National Endowment for the Humanities.

**Richard E. Beard**, Emory University. Training in museum curatorship, with Mr. Marvin Sadik, National Portrait Gallery.

**Kenneth A. Yellis**, University of Rochester. Training in museum curatorship, with Mr. Marvin Sadik, National Portrait Gallery.

### *Program for Cooperative Education Students*

**Brenda Lynch**, Antioch College. Development of a media program involving both photography and videotaping of museum activities relating to or of use for the educational department, with Mrs. Teresa Grana, National Collection of Fine Arts.

**Edward J. Weisenbach**, Antioch College. Applications of media in museum programs, with Mrs. Teresa Grana, National Collection of Fine Arts.

## *Program for Cooperative Fellows*

**John F. Commander**, University of Maryland. Preliminary research into applications of aeronautical and space-related scientific and technological developments to Earth-bound uses, with Dr. Louis Bucciarelli, National Air and Space Museum.

**Theodorus Costopoulos**, George Washington University. Investigation of how power engineering has been affected by technological developments within the air and space industry, with Dr. Louis Bucciarelli, National Air and Space Museum.

**Ronald E. Jutila**, Georgetown University. Investigations of spin-offs of space travel technology as they benefit Earth-bound apparatus, with Dr. Louis Bucciarelli, National Air and Space Museum.

**Richard B. LeBaron**, George Washington University. Study of some of the general societal effects of air and space technology in terms of attitude shifts and cultural impacts, with Dr. Louis Bucciarelli, National Air and Space Museum.

**James D. Maloney**, George Washington University. Study to determine which future energy source developed from the space program would be best investment for future payoff in meeting and relieving some of the energy shortage, with Dr. Louis Bucciarelli, National Air and Space Museum.

## *Program in Museum Study*

**Jane Adams**. Organized and indexed photos and slides from the Pakistan Ancient Technology Program, with Dr. Owen Rye, National Museum of Natural History.

**Amanda Brown**, New College, Florida. Assisted in arrangement of anthropological archival materials, also reference and correspondence regarding Indian Art, with Mr. James Glenn, National Museum of Natural History.

**Marianna Doyle**, Dunbarton College. Undertook the duties of a Museum Technician in the Department of Invertebrate Zoology, with Dr. Thomas Bowman, National Museum of Natural History.

**Dale Gnidovec**, Muskingum College. Worked toward familiarization with various ancillary aspects of museum work anticipating going on to more advanced level, with Dr. Nicholas Hotton, National Museum of Natural History.

**Lois Hentzschel**, Dunbarton College. Trained to learn all facets of museum operations, specifically registration, exhibit, and conservation procedures, with Mr. Lloyd Herman, Renwick Gallery.

**Michel Monsour**, Tulane University. Engaged in photographing Washington Victorian townhouses threatened with demolition in the vicinity of Judiciary Square and Dupont Circle, with Mr. James Goode, Smithsonian Institution Building.

**Nancy Moore**, University of Maryland. A general examination of Greek coins, dealing with a number of problems encountered in research in this area, with Dr. Vladimir Clain-Stefanelli, National Museum of History and Technology.

**Karen L. Moss**, University of Massachusetts. Sorting and organizing the reserve collection from China, with Dr. Eugene Knez, National Museum of Natural History.

**Dennis Mroczkowski**, George Washington University. Research on and identification of Zouave uniforms and research on U. S. Army field uniforms, 1940-1953, with Mr. Donald Kloster, National Museum of History and Technology.

**Dante Quercio**, University of Massachusetts. Research to prepare an annotated bibliography of all manuscripts, publications, and specimens relating to James Smithson, the founder of the Smithsonian, with Mr. James Goode, Smithsonian Institution Building.

**Nancy Reichman**, New College, Florida. Tabulating and preparing a large body of unpublished data on American Indians from the 1970 census and research on Indians east of the Mississippi River and correspondence with a number of Eastern states offices in obtaining data on the legal status of present-day Indians in those states, with Dr. Samuel Stanley, National Museum of Natural History.

**Anita Rolle**, College of Notre Dame of Maryland. Cataloguing a collection of early 20th-century dressmaking fabrics, with Mrs. Rita Adrosko, National Museum of History and Technology.

**Nancy Welch**, University of Massachusetts. Independent study project on museum education, with Mrs. Teresa Grana, National Collection of Fine Arts.



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#### APPENDIX 4. *Progress on Building Construction, Restoration, and Renovation*

**Anacostia Neighborhood Museum.** The construction of the Exhibit Design and Production Laboratory is 40 percent complete with the entire project due to be finished in the fall of 1974.

**Arts and Industries Building.** Contract was awarded for the restoration and air conditioning of the building, and 5 percent of the construction work, which began in March 1974, has been completed. In addition, fire protection systems, exterior lighting, and restroom facilities were completed. The restoration and renovation project is scheduled for completion in the third quarter of fiscal year 1976.

**Chesapeake Bay Center for Environmental Studies.** Construction of the Visitor Center and Dormitory was initiated in the last quarter with completion scheduled for the fall of 1974. The Jefferson Island renovation and bulkheading design work reached the 95 percent completion stage, and the construction contract award and beginning of work will occur late this fiscal year.

**Fine Arts and Portrait Galleries.** Design of the exterior lighting plan is 90 percent complete. The third floor renovation is 30 percent complete with the first floor corridor renovation 95 percent complete. Staff and public lunchroom construction was completed, and these facilities are expected to be operating by the end of this fiscal year.

**Hirshhorn Museum and Sculpture Garden.** Construction is approximately 95 percent complete with the public opening scheduled for the late fall of 1974.

**History and Technology Building.** The execution of the exterior lighting plan was completed. North terrace and roof repairs were finished. Design for the Library addition is progressing, as is the design for the remodeled Conservation Analytical Laboratory. Construction for the latter is scheduled for completion in the fall of 1974.

**National Air and Space Museum.** Construction is 45 percent complete with the scheduled opening to the public set for July 4, 1976. Initial occupancy is scheduled for the late summer of 1975.

**National Zoological Park.** Construction of the Monkey House and Cheetah facility are 25 percent completed in accordance with the Master Plan. During the year, demolition of the Lion House took place and construction will be initiated in the first quarter of next fiscal year. Projected completion of the new facility is scheduled for the third quarter of fiscal year 1977. Also, in conjunction with the Master Plan, the general services and parking facility design is 95 percent completed. Still in the design stages are the Elephant Yard and Bird Area. Appropriations for design and site development of the Conservation Center, Front Royal, Virginia, Master Plan will be included in the fiscal year 1976 budget request.



**Natural History Building.** Constuction of administrative and production space is 30 percent complete for the Center for the Study of Man. Design of the building's exterior lighting plan was completed and also the specifications for the Library expansion. Contract awards are expected to be made in the first quarter of fiscal year 1975.

**Silver Hill Facility.** Construction work on Building 24 was initiated and is 75 percent completed. Building 25 construction is 15 percent completed. Both buildings should be finished by the fall of 1974.

**Smithsonian Institution Building.** Humidification system installation was completed. The planning and design phase of the South Yard development and restoration is underway.

**Bicentennial Exhibit Construction.** Demolition and construction will begin in the first quarter of next fiscal year for the "Nation of Nations" exhibit in the History and Technology building. Construction was started for the "Of the People, By the People, For the People" exhibit for the History and Technology building. Design was completed for the "Ecology 200" exhibit for the Natural History building. In the Arts and Industries building, the planning is nearing completion for the exhibit of the re-creation of the Centennial. All exhibit projects are scheduled for completion prior to the Bicentennial.

APPENDIX 5. *Smithsonian Foreign Currency Program Grants  
Awarded in Fiscal Year 1974*

ARCHEOLOGY AND RELATED DISCIPLINES

**American Institute of Indian Studies**, Philadelphia, Pennsylvania. Continued support for administration, Benares Center for Art and Archeology, and research fellowships (India).

**American Museum of Natural History**. New York, New York. Excavation at the Harappan site of Allahdino in the Malir Area, Karachi District, Pakistan.

**American Research Center in Egypt**, Princeton, New Jersey. Continued support for a program of research and excavation in Egypt: support for operation of the Cairo Center, fellowship support, maintenance of archeological research at the site of Hierakonpolis (Nekhen) in Edfu District, survey of Arabic scientific manuscripts in Cairo, maintenance of a stratified pharonic site in the Egyptian delta at Mendes, Akhenaten Temple project, research in modern Arabic literature, continuation of an epigraphic and architectural survey at Luxor of the Oriental Institute, feasibility of clearing, conserving, and recording the tomb of King Ramesses II in the Valley of the Kings, an egyptological conference, editing the Nag Hammadi codices.

**Boston University**, Boston, Massachusetts. Archeological excavations at Stobi (Yugoslavia).

**Dumbarton Oaks Center for Byzantine Studies**, Washington, D.C. A corpus of the ancient mosaics of Tunisia.

**Smithsonian Institution, Department of Anthropology**, Washington, D.C. Helmand-Sistan projects: studies of historical ecology.

**Southern Methodist University**, Dallas, Texas. The Pleistocene sediments of the Nile Valley, Egypt.

**State University of New York at Buffalo**, New York. Investigations on the Neolithic sites in Southeastern Poland.

**University of California**, Berkeley, California. Archeological excavations at the Harappan Seaport of Balakot, Pakistan.

**University of Minnesota**, Minneapolis, Minnesota. Excavations in Diocletian's Palace at Split, Yugoslavia.

**University of Missouri**, Columbia, Missouri. Research and study of Early Medieval Polish archeology.

**University of Pennsylvania, University Museum**, Philadelphia, Pennsylvania. The Dira Abu el-Naga project (Egypt).

**University of Pennsylvania, University Museum**, Philadelphia, Pennsylvania. Excavation within the town and harbour site of Malkata, Western Thebes (Egypt).

## SYSTEMATIC AND ENVIRONMENTAL BIOLOGY (INCLUDING PALEOBIOLOGY)

**Academy of Natural Sciences, Philadelphia, Pennsylvania.** Biochemical investigations of diploid and triploid frogs of the *Rana esculenta* complex (Poland).

**Duke University, Durham, North Carolina.** Exploitation of habitats by chemically differentiated races of morphologically uniform lichen-forming fungi (Tunisia).

**Harvard University, Museum of Comparative Zoology, Cambridge, Massachusetts.** Study of the dentition of Cretaceous mammals of Mongolia (Poland).

**Howard University, Washington, D.C.** Cenozoic mammals of Pakistan.

**Smithsonian Institution, Department of Botany, Washington, D.C.** Revision of *Trimen's Handbook to the Flora of Ceylon*.

**Smithsonian Institution, Department of Paleobiology, Washington, D.C.** Comparative study and geography of selected Devonian and Permian corals in Poland and the U.S.A.

**Smithsonian Institution, Office of International and Environmental Programs, Washington, D.C.** Limnological investigations of Lake Ohrid (Yugoslavia), limnological investigations of Skadar Lake (Yugoslavia), Mediterranean Marine Sorting Center (Tunisia).

**Smithsonian Institution, Tropical Research Institute, Balboa, Canal Zone.** Ecology of freshwater lakes in Panama (Poland).

**Texas Tech University, Lubbock, Texas.** Mammals of the Adriatic islands and adjacent mainland of Yugoslavia.

**University of California, Berkeley, California.** A biosystematic comparison of the siphonocladales (Chlorophyta) (Tunisia).

**University of California, Berkeley, California.** Comparative study of Late Cretaceous Mongolian and North American mammals (Poland).

**University of Michigan, Ann Arbor, Michigan.** Systematic studies of the molluscan genus *Bulinus* in Africa and adjacent regions (Egypt).

**University of Utah, Salt Lake City, Utah.** The evolution of optimal reproductive strategies (India).

**Utah State University, Logan, Utah.** Systems analysis of the PreSaharan ecosystem of Southern Tunisia.

**Yale University, New Haven, Connecticut.** Paleoanthropology, paleontology, and stratigraphy of Neogene localities in Pakistan.

## ASTROPHYSICS AND EARTH SCIENCES

**Duke University, Durham, North Carolina.** Studies in Lake of Tunis.

**Smithsonian Institution, Astrophysical Observatory, Cambridge, Massachusetts.** Operation of the Uttar Pradesh State Observing Station at Naini Tal (India).

**Smithsonian Institution, Department of Mineral Sciences, Washington, D.C.** Lonar Meteorite Crater project (India).

**University of Washington, Seattle, Washington.** Color magnitude diagrams for young star clusters in magellanic clouds (Poland).



## MUSEUM PROGRAMS

**Smithsonian Institution, Department of Science and Technology, Washington, D.C.** Publication in Islamic medicine in the thirteenth century (Egypt).

**Smithsonian Institution, Office of Museum Programs, Washington, D.C.** Publication of ICOM's *The Protection of Cultural Property: handbook of national legislations*.

**Smithsonian Institution, Traveling Exhibition Service, Washington, D.C.** Study and exhibition of Wissa Wassef tapestries from Egypt.

## APPENDIX 6. *News Releases, Radio Programs, and Leaflets Issued by the Office of Public Affairs in Fiscal Year 1974*

### NEWS RELEASES

Musical Director Will Speak in Associates Series July 12	July 3, 1973
Jonas Mekas Film Will Open Associates Summer Program	July 3, 1973
James Billington Will Direct Wilson Center for Scholars	July 9, 1973
Have ESP? July <i>Smithsonian</i> Offers Do-It-Yourself Tests	July 6, 1973
Finest Known Model Rocket Collection Given to National Air & Space Museum	July 12, 1973
Grand Style Prints, Objects on View at National Collection of Fine Arts	July 12, 1973
Display Sale of George Ohr Pottery Complements Renwick Gallery Exhibit	July 12, 1973
N.Y. Light Ensemble Will Perform in Smithsonian Associates Program	July 13, 1973
"Antwerps's Golden Age" Highlights Smithsonian's Summer Road Shows	July 13, 1973
Visitors and Press Hall National Portrait Gallery's Exhibition Tracing Involvement in the Founding Years of the Republic	July 17, 1973
Exhibit Will Commemorate Centenary of Pioneer Aeronaut Santos-Dumont	July 18, 1973
Payroll of Revolutionary Man-Of-War To Join <i>Philadelphia</i> at Smithsonian	July 19, 1973
Associates Schedule Free Film on Sundays	July 19, 1973
Smithsonian Stieff Sign Agreement for Line of Silver, Pewter Products	September 13, 1973
Connecticut Firm Gives Museum Early Naval Uniforms Officers Uniforms	September 14, 1973
"New Images 1839-1973" Compares Early Photo Techniques, Modern Counterparts	September 14, 1973
Performing Arts Variety Offered at Smithsonian Renwick Gallery To Exhibit "American Glass Now"	September 17, 1973
Women's Liberation at the Smithsonian	September 17, 1973
The Energy Crisis May Change Our Architecture	September 19, 1973
Ten Traveling Exhibitions Circulated by Smithsonian	September 19, 1973
Music from Marlboro To Open Washington Season Oct. 20	September 24, 1973
Smithsonian Puppet Theater Premieres "Patchwork"	September 27, 1973
23rd National Exhibition of Prints at NCFR To Reflect Artistic Trends	September 20, 1973
Smithsonian Award To Philadelphia Man	September 21, 1973

Neglected 19th Century American Painter Being Afforded Major Exhibition at NCFA	September 26, 1973
Smithsonian Associates Offer Fall Trips to Historical Sites	October 2, 1973
Associates Fall Film Series To Feature Baillie Festival	October 4, 1973
Michael Huxley Named To Science Post	October 9, 1973
Director Jerzy Grotowski To Speak at Smithsonian	October 10, 1973
Inflatable Rubberized Airplane To Be Presented to Air Museum	October 10, 1973
Smithsonian Seeks Donations of Clothing Circa 1920-1970	October 11, 1973
U.W. Workshop's Spanish Connection Yields Exhibition of Prints at NCFA	October 12, 1973
Movable Concert on Modern Music Will Be Performed in 3 Galleries at NCFA	October 12, 1973
Pacific Northwest Indian Boxes, Bowls Will Be Exhibited at Renwick Gallery	October 12, 1973
4 Scholars To Give Free Lectures at NCFA on American Sculpture for Period 1830-1930	October 12, 1973
Wymerley Coerr Will Direct New Office of International Environmental Programs	October 12, 1973
Collector Will Discuss Russian Abstract Art in Free Lecture	October 18, 1973
Open House at NCFA Gives Public Chance To Go Behind the Scenes of Art Museum	October 18, 1973
Major Smithsonian Exhibition Traces History of Rehabilitation Medicine	October 19, 1973
Smithsonian Will Produce Birthday Tribute to Gershwin, Todd Duncan	October 19, 1973
Energy Crisis May Make Windmills Turn Again	October 5, 1973
Shaker Furniture, Drawings Will Be Shown at Renwick Exhibit Opening Nov. 2	October 24, 1973
Marguerite Zorach: The Early Years, 1908-1920	October 10, 1973
Artists, Verda, Olmera Peters Illustrate Tribal Costumes of Southern Africa	October 10, 1973
Smithsonian Will Present Bill Monroe, Bluegrass Boys, Guest Fiddlers Nov. 11	October 29, 1973
Smithsonian To Host Performances by Kathakali Troupe Nov. 19 & 20	October 30, 1973
Smithsonian Collection of Classic Jazz Now Available	October 30, 1973
Earl Hines Will Perform in Jazz Heritage Concert	October 31, 1973
Associates Offer Poetry Readings	October 31, 1973
Needlework Highlighted in New Smithsonian Tour	November 2, 1973
Art of the Pacific Northwest: From the 1930's to the Present	November 6, 1973
Theater Chamber Players in Residence at the Smithsonian	November 6, 1973
Meyer Foundation Gives Grant for Freer Program	November 7, 1973
Princeton Scholar Will Lecture on Two Freer Gallery Paintings	November 7, 1973
Outstanding Naturalist Photographer Will Show Latest Film November 12	November 7, 1973



NCFA Woodcuts Exhibit To Survey New Developments in Old Medium	November 7, 1973
Unsung Aspect of Aviation-Air Traffic Control Will Get Its Day in New Smithsonian Institution	November 7, 1973
Sony President Will Open Doubleday Lecture Series	November 8, 1973
National Zoo's Giant Pandas Get New Outdoor Play Yards	November 13, 1973
Highlights of Articles in Current Smithsonian Research Reports	November 13, 1973
American Music Group To Perform 19th Century American Music	November 14, 1973
Musical Fantasy Adapted From Peking Opera To Be Performed at Smithsonian	November 15, 1973
"Ascent of Man" Film Series To Premiere at Smithsonian	November 16, 1973
Hirshhorn Museum Recruiting Volunteers for Docent Program	November 20, 1973
Smithsonian Acquires Historic Diesel Engine	November 20, 1973
Exhibit at NCFA of Rediscovered Paintings Will Show Marguerite Zorach as Innovator	November 20, 1973
Art Portfolio DAT at NCFA Brings College to Students	November 21, 1973
200 Years of Royal Copenhagen Porcelain	November 21, 1973
Stars Fell on Talladego—Article Proposes New State Name	November 21, 1973
Portrait Gallery Exhibit Commemorated 150th Anniversary of Monroe Doctrine	November 12, 1973
"Creep" Slowly Tearing California Town in Two	November 26, 1973
Smithsonian Associates Will Mark Turkish Republic's 50th Birthday	November 26, 1973
Smithsonian To Present Homage to Poet W. H. Auden	November 26, 1973
John E. Graf, Former Smithsonian Assistant Secretary	November 26, 1973
Renwick Gallery To Ring in Christmas With Free Handbell Concert Dec. 11	November 29, 1973
Oberlin Baroque Ensemble Will Perform at Smithsonian Institution December 7	November 30, 1973
Cecil Taylor To Speak, Perform at Jazz Heritage Series Dec. 16	November 30, 1973
Art Museums Open Restaurant	December 5, 1973
Charles DeVault to Coordinate TV Projects for Smithsonian	December 5, 1973
Coloring the Smithsonian To Go on Sale December 10	December 7, 1973
Smithsonian Guidebook Now Available in Four Foreign Language Editions	December 7, 1973
Christmas Gift Idea from Smithsonian Resident Puppet Theater	December 12, 1973
Group Tours of Shaker Exhibition Now Available at Renwick Gallery	December 13, 1973
Smithsonian, Alva Sign Contract for Reproductions	December 17, 1973
Display of Islamic Ceramics Will Conclude Freer Celebrations.	December 17, 1973

NCFA to Show Saul Steinberg Drawings	December 17, 1973
Statement by S. Dillon Ripley, Secretary of the Smithsonian Institution on the Death of Charles Greeley Abbot	December 17, 1973
NCFA to Show Joseph Cornell Boxes	December 19, 1973
Smithsonian Puppet Theater Extends <i>Patchwork</i> Through Jan. 6	December 19, 1973
Associates Will Present Production of Virginia Folk Tales for Children	December 14, 1973
Two "Distinguished Scholars" Among 18 Fellows Named by Woodrow Wilson Center	December 20, 1973
Western Wind Group To Perform Early American Music Jan. 7	December 20, 1973
Theater Chamber Players Reschedules Concert for January 14	December 20, 1973
Johnson-Sea-Link Panel Submits Report to Smithsonian Secretary	December 27, 1973
Michael Stephans, Karl Berger To Perform Their Works at Smithsonian January 11	December 26, 1973
Smithsonian Winter Courses Range From Architecture to Pantomime	December 27, 1973
Anacostia Museum Will Show Barnett-Aden Art Collection	January 2, 1974
"Bigfoot" Legend Still Persists 163 Years After First Sighting.	January 2, 1974
Anthropologist Will Lecture January 15 on Supernatural World of Ancient Maya	January 4, 1974
Freer Lecturer to Discuss Ceramics Art of the Khmers	January 4, 1974
Kyne's Consort Will Perform Concert of 16th Century Music	January 7, 1974
Think 68 Is Cold? Don't Try Siberia	January 7, 1974
"American Self-Portraits" Will Open at National Portrait Gallery Feb. 1	January 8, 1974
Contemporary Paintings From Pakistan Will Be Exhibited at Renwick Gallery	January 9, 1974
Exhibit Will Feature Works by 12 Major Photographers	January 9, 1974
Memo to Editors: Tenth Anniversary of National Museum of History and Technology	January 9, 1974
Renwick Gallery Schedule Free Talks on Shaker Religion and Architecture	January 14, 1974
Smithsonian's 3rd Annual Musical Weekend in Washington Scheduled for May 10-12	January 13, 1974
Memo to Editors: National Museum of History and Technology Auditorium Named for Leonard Carmichael	January 14, 1974
Cajun Musicians, Mountain String Band To Perform in Concert at Smithsonian	January 17, 1974
Work of Expatriate American Artist To Be Shown at National Collection	January 17, 1974
Biologist Watson Will Speak in Doubleday Lecture	January 18, 1974
National Zoo Will Establish Breeding Farm in Front Royal	January 21, 1974

"Anatomy of a Gallop" Contrasts Portrayals of Running Horses	January 21, 1974
Dr. Joshua Taylor To Give Lecture on Pacific Northwest Art	January 21, 1974
R. V. Johnson Will Be Launched January 26 at Ft. Pierce, Fla.	January 21, 1974
National Portrait Gallery Receives Pearl Buck Portrait	January 23, 1974
Smithsonian Publishes Definitive Monograph on 19th Century Artist Robert Loftin Newman	January 24, 1974
Explore Gallery for Children Opens at National Collection of Fine Arts	January 24, 1974
National Collection of Fine Arts to Survey Pacific Northwest Art of Last Four Decades	January 24, 1974
Smithsonian Publishes Catalog on Art of Pacific Northwest	January 24, 1974
Theater Chamber Players Will Present Second Concert at Smithsonian Feb. 4	January 24, 1974
Walter Hopps To Give Free Lecture on Artist Joseph Cornell at NCFA	January 24, 1974
Environmental Law Conference To Be Held in San Francisco	January 25, 1974
Freer Lecturer to Discuss Imagery on Iranian Vessels	January 25, 1974
Museum Director To Give Talks in Luncheon Series	January 25, 1974
Air Force Chamber Players Will Present All Debussy Concert at Renwick Gallery	January 28, 1974
Associates Will Present Two Events for Black History Week, Feb. 10-16	January 28, 1974
Smithsonian To Present Second Series of Guggenheim in Lectures in Astronomy	January 29, 1974
There's a Good Time Coming March 10, 11, 12 at Smithsonian	January 30, 1974
Placing of 2 Large Statues Will Complete Exterior Restoration of Renwick Gallery	January 30, 1974
Pinocchio Opens February 6 at Smithsonian Puppet Theater	January 31, 1974
Out of Gas? Let Puppet Theater Come to You	February 1, 1974
Establishment of "Seven Sisters" Was Milestone for Women's Rights	February 5, 1974
Four Staff Changes Are Announced by National Collections of Fine Arts	February 1, 1974
Smithsonian Completes World Survey of Pollution Monitoring Programs	February 7, 1974
Michael Straight Will Talk at Renwick Gallery on Government's Role in Environmental Design	February 7, 1974
Lionel Hampton To Appear at Smithsonian February 17	February 12, 1974
"Music From Marlboro" at Smithsonian March 2	February 12, 1974
Ann Van Devanter Will Discuss Self-Portrait Painters in Free Lecture at National Portrait Gallery March 3	February 12, 1974
Jacob Bronowski Will Be Present for 2 "Ascent Of Man" Showings	February 14, 1974
James Weaver Will Perform Bach Clavierbung Feb. 22-25	February 15, 1974



Film Festival To Highlight Work by Czech Filmmakers	February 19, 1974
8th Annual Festival of American Folklife Scheduled for Two Weeks on the National Mall, July 3 through 14	February 19, 1974
Los Angeles Mayor Bradley Will Speak at Smithsonian	February 21, 1974
Smithsonian Exhibit Depicts Culture "Land of Dragons"	February 21, 1974
March Smithsonian Offers Energy Conservation Tips	February 22, 1974
Anacostia Extends Barnett-Aden Show	February 25, 1974
Biologist Barry Commoner To Speak at Smithsonian	February 25, 1974
Associates Offer Lecture Series on Oriental Rugs	February 26, 1974
Third Frank Nelson Doubleday Lecture To Be Held March 7	March 1, 1974
Ralph Stanley and the Clinch Mountain Boys in Concert at the Smithsonian March 10	March 3, 1974
Carmen McRae To Perform at Smithsonian March 17	March 3, 1974
National Portrait Gallery Publishes Catalog To Accompany Exhibition on Monroe Doctrine	March 4, 1974
New "Discovery Room" Brings Museum Objects Out of Cases	March 5, 1974
Leonard Rapport Will Deliver First 1974 Philatelic Lecture	March 5, 1974
Smithsonian To Begin Evening Hours April 1	March 6, 1974
Freer Lecturer To Discuss Japanese Visual Poetry	March 7, 1974
Rare Tourmaline Crystals Presented to Smithsonian	March 11, 1974
Memo to Editors	March 7, 1974
Smithsonian Offers Tour of Ceramics & Glass Halls	March 7, 1974
One-Million-Dollar "Hope Diamond" Sent to Smithsonian by \$145.26 Metered Postage	March 8, 1974
Invitation to a Movie Premiere	March 13, 1974
Free Talk on Collector John Gellatly Will Be Given at National Collection	March 14, 1974
Religious Folk Art on View at Renwick as Tribute to the Arts of the Americas	March 14, 1974
Tribute to Mark Tobey	March 14, 1974
Annual Kite Competition March 23 at Monument	March 15, 1974
Smithsonian Institution Announces New Series of Specials for the DuPont Cavalcade of Television, David L. Wolper To Produce	March 18, 1974
National Portrait Gallery To Present First Major Smithsonian Bicentennial Exhibition	March 18, 1974
Marlboro Musicians To Perform at Smithsonian April 6, 1974	March 27, 1974
Air and Space Museum Will Bring Back Age of Barnstorming in New Exhibit	March 22, 1974
Paul Mellon Presents 761 Saint-Memin Portraits to Smithsonian's National Portrait Gallery	March 24, 1974
An Invitation to an Afternoon of American Music	March 25, 1974
An Invitation to a Lecture on Art	March 26, 1974
Ancient Cities, Psychical Medicine, Antique Organs & the Cosmos Among Smithsonian Courses	March 27, 1974
Smithsonian To Open New Ecology Exhibit	March 28, 1974
The Story of a Building—NPG	March 29, 1974

Smithsonian To Recall Historic Flight with Display of Douglas World Cruiser	April 1, 1974
Former Hermitage Curator Will Speak on Arms & Armour in Its Collections	April 1, 1974
Associates Lecture Series Examines "What's New at Smithsonian"	April 2, 1974
Editors' Advisory: "Alternative World Model System" Press Conference	April 3, 1974
Panel To Discuss Pennsylvania Avenue in Illustrated Presentation at Smithsonian	April 4, 1974
Science Information Exchange Offers New Monthly Service	April 4, 1974
Associates Guide Offers Tips to Washington, D.C. Visitors	April 8, 1974
National Collection of Fine Arts Opens Gallery Devoted to Portrait Miniatures	April 8, 1974
Architect Moshe Safdie To Deliver Doubleday Lecture at Smithsonian	April 8, 1974
Renwick Exhibition Will Survey 200 Years of Royal Copenhagen Porcelain Creativity	April 8, 1974
Smithsonian Jazz Concert Marks Tribute to Ellington	April 10, 1974
Press Advisory: Museum Education Day	April 11, 1974
Bathrooms in America — Exhibit Shows How Far We've Come	April 11, 1974
Gloria Steinem Will Speak in Popular Culture Series	April 11, 1974
Dr. Jdenek David Appointed New Librarian for Woodrow Wilson Center for Scholars	April 12, 1974
Smithsonian Associates Schedule Theater Production for Children	April 15, 1974
Birth of Twins [Golden Lion Marmosets] at National Zoological Park Milestone in Effort to Save Endangered Species	April 15, 1974
White House Portrait of Lincoln Highlights National Portrait Gallery Exhibition	April 18, 1974
Smithsonian Offers New Tours for Groups	April 19, 1974
Smithsonian Anthropologist Will Lecture on Northwest Coast Indian Boxes, Bowls	April 22, 1974
National Collection of Fine Arts Plans Gala for Children on May 18	April 22, 1974
Museum Showing Collages by Anne Ryan	April 22, 1974
Washington Print Club Will Hold 5th Biennial Exhibition at NCFA	April 22, 1974
1st Open Boomerang Tournament in U.S. Is Scheduled by Smithsonian on May 18	April 23, 1974
Smithsonian Boomerang Workshop To Give Enrollees Happy Returns	April 23, 1974
Associates Schedule Lecture on Life & Thoughts of Buddha	April 23, 1974
Theater Chamber Players May 6 Performance To Feature American Premiere of Choral Work	April 24, 1974
3 Experts To Discuss Options for Dealing with Energy Situation	April 24, 1974
The Smithsonian Comes to Brentano's	April 24, 1974

Smithsonian, Fieldcrest Sign Agreement for Manufacture of Textile Products Based on Institution's Collections	April 25, 1974
Johns Hopkins Study Suggests That Emotional Clues Exist To Predict Susceptibility to Cancer, Other Disorders	April 25, 1974
Renwick Gallery Will Survey What's New in Goldsmithing	April 29, 1974
Top Work in Exhibit Is Cited	April 29, 1974
Final Jazz Heritage Concert of 1973-74 Season To Feature Jim Hall Duo and Jimmy Guiffre	April 29, 1974
Portraits of Speakers of the House on View at the National Portrait Gallery	May 1, 1974
Children's Art Depicts Concern for Whales	May 1, 1974
Associates Display Winning Photographs	May 2, 1974
Mozart Concerts at Smithsonian To Feature Original Instruments	May 3, 1974
"What If . . ." A Comic Space Fantasy To Open Previews May 8 at Smithsonian Puppet Theater	May 3, 1974
Anacostia Museum Will Show Art by D.C. School Students	May 6, 1974
Walter Terry, Charles Guggenheim Will Lecture on Ballet, Filmmaking	May 9, 1974
Museum Reopens Its Main Entrance	May 9, 1974
Caspar Weinberger Will Deliver Final "Creativity and Collaboration" Lecture	May 13, 1974
Tribute to Mark Tobey Opens at National Collection of Fine Arts	May 13, 1974
National Portrait Gallery Receives Portrait of Richard Henry Lee	May 16, 1974
NPG To Unveil President Lyndon Johnson's Favorite Portrait of Himself	May 20, 1974
Mississippi Traditions To Be Featured at Folklife Festival on Mall July 3-7	May 21, 1974
Greever Allan Will Deliver Second 1974 Philatelic Lecture	May 20, 1974
Houston Endowment Grant To Fund Directory of Medical Artifacts	May 22, 1974
Wilson Center Offers Fellowships to Eleven Scholars for 1974-75	May 28, 1974
Communications Workers Featured at Festival of American Folklife	June 4, 1974
Stephen Weil Appointed Deputy Director of Hirshhorn Museum	May 31, 1974
Hirshhorn Museum Names Charles Millard Chief Curator	May 30, 1974
Bicentennial Exhibition Opens at National Portrait Gallery June 14	May 31, 1974
Smithsonian Seeks Teen Volunteers	May 31, 1974
Sports, Crafts, Learning Center in Festival of American Folklife	May 31, 1974
Theater Chamber Players Will Perform World Premiere Graziano Concerto	June 3, 1974



Institute in Jazz Criticism Scheduled Sept. 23–Oct. 2, in Washington	June 3, 1974
Smithsonian Article Reexamines Ocean's Potential for Food, Fuel	June 3, 1974
Smithsonian's Hirshhorn Museum Opens October 5, 1974	June 6, 1974
Press Review, National Portrait Gallery June 13	June 6, 1974
Volunteers Needed for Smithsonian Insect Zoo	June 7, 1974
"Shoo Bird" Protects From Migrating Birds	June 10, 1974
Participants From Nine Nations Will Show "Old Ways in the New World" at Festival	June 10, 1974
Tea Chest	June 11, 1974
New "African Diaspora" Presentation of Festival To Show Black Culture from U.S., Trinidad, Africa	June 13, 1974
Press Preview, Festival of American Folklife	June 14, 1974
Art Conservation Methods Explored in NCFA Exhibit	June 18, 1974
NCFA Exhibition Examines American Prints 1920–1940	June 18, 1974
Smithsonian Guidebook Produced in Braille	June 18, 1974
Summer Courses for Young People Range from Dinosaurs to Videotape	June 26, 1974
\$ Million Equivalent Contributed to UNESCO for Egyptian Monuments	June 21, 1974
Associates Offer Classes, Studio Courses for Summer Festival To Introduce New Children's Area	June 21, 1974
Portland Zoo a School for Its Animal Residents	June 25, 1974
Duke Ellington You've Probably Never Heard	June 26, 1974
	June 27, 1974

## "RADIO SMITHSONIAN" PROGRAMS

July 1. "Man and African Wildlife." A discussion featuring John Owen, formerly Director of National Parks in Tanzania, and Helmut Buechner, Senior Scientist at the National Zoo in Washington.

July 8. "Concert," featuring two rarely performed works by Georg Philipp Telemann.

July 15. "Life with the Bushmen." John Yellen, a pre-doctoral fellow at the National Museum of Natural History, recalls his experiences while living for two years with the Bushmen of southern Africa.

"The Giant Timber Bamboo." Two Smithsonian scientists tell the story of an unusual species of bamboo that blooms only once every 120 years, and is now in bloom in the United States.

July 22. "Indians in Washington." Dr. Herman Viola of the National Anthropological Archives describes how the American Government used diplomacy rather than force, in dealing with the Indians in the early 19th century.

"The Black Presence in the Era of the Revolution." A look at a neglected part of our history, with Sidney Kaplan, professor of Afro-American Studies at the University of Massachusetts.

July 29. "Great Tenor Sax Men." Another program in the "Radio Smithsonian" jazz series, with Martin Williams, Director of the Smithsonian's Jazz Studies Program.

August 5. "Giants of the Ocean." A look at whales, focusing on the efforts being made to protect them and studies of how they live.

August 12. "Concert." A program of baroque music, presented by the Smithsonian's Division of Musical Instruments.

August 19. "Art in America." A discussion featuring Walter Hopps, Visiting Curator at the National Collection of Fine Arts, and Val Lewton, an artist on the National Collection staff.

"What Good Are the Moon Rocks?" A talk with Farouk El Baz, Research Director at the National Air and Space Museum.

August 26. "The Literary Scene," surveyed by Saul Bellow, author of *Herzog* and *Henderson, the Rain King*.

"A Dissent on Modern Farming." Botanist Hugh Iltis of the University of Wisconsin explains why he thinks today's farming methods may be ecologically harmful.

September 2. "Concert," featuring music of the Middle Ages and the Renaissance, performed by Les Menestriers, a young group from France.

September 9. "The 1973 Festival of American Folklife," Part I. A sampling of the people and music that make the Folklife Festival one of the Smithsonian's most popular events.

September 16. "The 1973 Festival of American Folklife," Part II.

September 23. "The 1973 Festival of American Folklife," Part III.

September 30. "It Talks, It Whispers, It Sings." A look at the history of the phonograph.

October 7. "Exploring Natural History." A talk with Porter Kier, new Director of the National Museum of Natural History.

"The Rise of the Spirit of Independence." A look at the importance of communication in the days preceding the American Revolution.

October 14. "Concert," featuring Judith Norell, harpsichord, and Bruce Brewer, tenor, performing music of Jean-Philippe Rameau and Andre Campra.

October 21. "Hammaraskjold, the Man." A look at the late Secretary-General of the United Nations, "an austere and enigmatic man," with Ambassador and Mrs. Rajushwar Dayal, who were among Hammaraskjold's closest associates.

October 28. "New Perceptions in Music." A conversation with Earle Brown, internationally recognized contemporary composer and conductor.

November 4. "The Smithsonian Collection of Classic Jazz," Part I. Martin Williams, Director of the Smithsonian's Jazz Studies Program, spotlights a new album issued by the Institution's Division of Performing Arts.

November 11. "The Smithsonian Collection of Classic Jazz," Part II.

November 18. "Renewing the Environment." A discussion featuring anthropologist Margaret Mead, who's taken an active interest in ecology, and John Milton of Threshold, a new non-profit environmental foundation.

"Beetle-Mania." Two coleopterists, Prof. Carl Lindroth of Sweden and Dr. Terry Erwin of the Smithsonian, explain why they study beetles and what they've learned from them.

November 25. "Protecting a Paradise." A look at the efforts under way to protect the environment of American Samoa, with its governor, John Hayden, and Smithsonian botanist Arthur Dahl.

"History in Stone." Mrs. Jane Fawcett, Organizing Secretary of the Victorian Society of Great Britain, describes the fight to save England's historic buildings.

December 2. "Bill Monroe in Concert." The father of bluegrass music performs with his group, The Bluegrass Boys, and two guest fiddlers, Charlie Smith and Tater Tate.

December 9. "A Visitor from Bhutan." A talk with Mynak Rimpoche, a Buddhist lama who heads the National Museum of Bhutan, in the Himalayas.

"Exploring the Depths." Smithsonian oceanographer Daniel Stanley describes the dangers of pollution in the seas.

December 16. "The Shaker Way." A look at the life and crafts of the Shaker religious sect. Guests include Mrs. Faith Andrews, a leading expert on Shaker culture, and Sister Mildred Barker, one of 14 remaining Shakers.

December 23. "Wilson's Living Memorial." Dr. James Billington, new Director of the Woodrow Wilson International Center for Scholars, talks about plans for the Center's future.

"Fighting Lassa Fever." Smithsonian curator Henry Setzer describes the efforts to curb Lassa fever, a serious disease carried by African rats.

December 30. "Concert," featuring 19th century American vocal music, performed by the American Music Group.

January 6. "The Ascent of Man." British mathematician and philosopher Jacob Bronowski discusses his thoughts on the history of man and science, as reflected in a new film series having its American premiere at the Smithsonian.

January 13. "The New Immigrants." Dr. Roy Bryce-LaPorte, Director of the Smithsonian's new Institute for Immigration and Ethnic Studies, describes the lot of West Indian immigrants in the United States.

"Exhibits on the Move." A look at the Smithsonian's efforts to "take the museum to the people."

January 20. "Concert," featuring baroque music performed on authentic instruments by the Oberlin Baroque Ensemble.

January 27. "A New Look at Learning." New trends in education, discussed by Dr. Samuel Gould, Chairman of the Commission on Non-traditional Study.

"China Looks at Her Past." A talk with Dr. Thomas Lawton, Deputy Director of the Smithsonian's Freer Gallery, who recently spent a month exploring art and archeology in the People's Republic.

February 3. "Concert," featuring music of America performed by the Western Wind and the Paul Hill Chorale.

February 10. "The Maya and the Supernatural." The spiritual world of the ancient inhabitants of Mexico is discussed by Professor Michael Cole of Yale University.

February 17. "A New Animal Farm." John Perry, Assistant Director for Conservation of the Smithsonian's National Zoo, talks about the zoo's new breeding farm at Front Royal, Virginia.

"A Bus for Culture." A look at New York City's culture bus, a new idea for getting visitors to museums.

"Schistosomiasis: A Tropical Threat." A report on the efforts to curb a disease possibly more serious than malaria.

February 24. "Science: The Real World." Nobel Prizewinning biologist James Dewey Watson offers his candid thoughts on what he calls "the sociology of science."



"Homage to Docents." A look at the Smithsonian's volunteer teaching guides.

March 3. "String Bands: Two Traditions." A concert featuring old-time mountain music, performed by Creed, Cockerham, and Patterson, and Louisiana Cajun music, played by the Balfa Brothers.

March 10. "Anthropolgy for Today." Dr. Sam Stanley, Program Coordinator for the Smithsonian's Center for the Study of Man, describes how the Center works on current human problems.

"Pacific Northwest Art." A lively and diverse art scene, explored by Rachael Griffin of the Portland Art Museum and Dr. Martha Kingsbury of the University of Washington.

March 17. "Television: On the Other Side." The British approach to television, discussed by Huw Wheldon, Managing Director of BBC-TV.

"Woodrow Wilson's Legacy," viewed by former ambassador George Kennan on the 50th anniversary of Wilson's death.

March 24. "A Conversation with Barry Commoner."

Also, "How Much Growth is Enough?," with growth specialist Chester Cooper, a fellow of the Woodrow Wilson International Center for Scholars.

March 31. "Concert," featuring the Baroque Ensemble of the Juilliard School, under the direction of Albert Fuller. Works include the Overture to "Zais," by Jean Philippe Rameau, and the Trio Sonata from the Musical Offering, by J. S. Bach.

April 7. "Reflecting on History." Dr. Brooke Hindle, new director of the National Museum of History and Technology, Describes his plans for the museum's future, and specifically for observing the Bicentennial. "The Scope of the Universe." An infinite subject, discussed as finitely as possible by Dr. Myron Lecar of the Smithsonian Astrophysical Observatory.

April 14. "Disaster in the Sahel." A look at the severe drought in the Sahelian zone of Africa and at research aimed at staving off such calamities.

April 21. "It All Depends." Smithsonian scientists Tom Soderstrom and Don Duckworth describe the interdependence of living things, as reflected in the tropical rain forest, the earth's most fragile eco-system.

April 28. "A Bluegrass Workshop," featuring Ralph Stanley and His Clinch Mountain Boys, performing at the Smithsonian.

May 5. "Unearthing the Past." Gus Van Beek, Curator of Old World Anthropology at the National Museum of Natural History, talks about his exciting excavations at Tell Jemmeh in Israel.

"On Creativity." Excerpts from a talk by violinist Yehudi Menuhin.

"Humanizing Architecture." A talk with Moshe Safdie, creator of the innovative "Habitat," seen at Expo 67.

May 12. "Concert," featuring recorder virtuoso Frans Brueggen and harpsichordist Alan Curtis.

May 19. "The Smithsonian Now and Tomorrow." A conversation with S. Dillon Ripley, who recently completed ten years as Secretary of the Smithsonian.

"To Save Wild Animals." Thomas Lovejoy of the World Wildlife Fund and Anne LaBastille of the Smithsonian talk about the increasing threats to the world's wildlife.

May 26. "The Great Louis Armstrong." Martin Williams, director of the Smithsonian's Jazz Studies Program, looks at one of the giants of jazz.

June 2. "Looking for Life in the Universe." Dr. George Field, director of the Smithsonian Astrophysical Observatory, talks about possible evidence for life beyond earth.

"Abraham Lincoln: The White House Years," discussed by Rick Beard and Ken Yellis, developers of a National Portrait Gallery exhibition focusing on Lincoln.

June 9. "Concert," featuring music of Mozart, performed by Jean Hakes, soprano, Sonya Monosoff, violin, and Malcolm Bilson, piano.

June 16. "Boomerangs: Many Happy Returns." Benjamin Ruhe, a boomerang expert and former Smithsonian staff member, tells about the lore of boomerangs. "Mexico: A Writer's View." A talk with the distinguished Mexican novelist Carlos Fuentes.

June 23. "First Flight Around the World." A look at the flight of the Douglas World Cruisers, which made the first circuit of the globe in 1927, with Maj. Gen. Leigh Wade, USAF Ret., who was one of the pilots.

"Creative Government." A conversation with Secretary of Health, Education, and Welfare Caspar Weinberger.

June 30. "Duke Ellington You've Probably Never Heard Before." Martin Williams, Director of the Smithsonian's Jazz Studies Program, spotlights some unfamiliar pieces by the Duke.

## LEAFLETS ISSUED

	<i>Identification Number</i>
References to Cultural Histories of the United States	73-5
First Ladies Dolls Bibliography	73-6
Photos of Clothing, Accessories of Presidents	73-7
Numismatic Dealers in New York City	73-8
Publications on Fishes — Indopacific Freshwater and Marine	73-9
Sources for Wildlife Pictures	73-10
First Ladies Hall Photos	73-11
Inaugural Photos (objects and illustrations)	73-12
Bibliography on the American Indian	73-13
Bibliography on American Ceramics	74-1
Bibliography on Indians of North America	74-2
Sources of Information for Careers in Biology, Conservation and Oceanography	74-3
Objects Associated With Revolutionary Era (list of photos)	74-4
Selected Readings on the First Ladies of the White House (revision)	74-5
Bibliography on American Antique Furniture	74-6

## APPENDIX 7. *Publications of the Smithsonian Institution Press in Fiscal Year 1974*

### GENERAL PUBLICATIONS

#### TRADE BOOKS

Joel E. Arem. *Man-Made Crystals*. 112 pages, 25 color and 48 black-and-white illustrations. December 1973. Cloth: \$15.00; paper: \$5.95.

David Edward Finley. *A Standard of Excellence: Andrew W. Mellon Founds the National Gallery at Washington*. 200 pages, 42 black-and-white illustrations. May 30, 1974. Cloth: \$7.50.

Glen A. Gilbert. *Air Traffic Control: The Uncrowded Sky*. xvi + 111 pages, 6 color and 183 black-and-white illustrations. July 17, 1973. Cloth: \$12.50.

Frank M. Hull. *Bee Flies of the World: The Genera of the Family Bombyliidae*. xii + 687 pages, color frontispiece, 1111 figures. November 12, 1973. Cloth: \$20.00.

Marion Clayton Link. *Windows in the Sea*. 198 pages, 15 color and 52 black-and-white illustrations. Reprint. October 1973. Cloth: \$12.50.

Ursula B. Marvin. *Continental Drift: The Evolution of a Concept*. vii + 239 pages, 102 figures. Revised reprint. June 10, 1974. Cloth: \$12.50.

Vladimir Simosko and Barry Tepperman. *Eric Dolphy: A Musical Biography and Discography*. Foreword by Martin Williams. x + 132 pages, 17 black-and-white illustrations. March 1974. Cloth: \$10.00.

#### BOOKS AND PAMPHLETS

Barbara Brand. *The Story of Belmont*. 16 pages, 13 black-and-white illustrations. March 1974. Paper: \$1.25.

Larry R. Collins. *Monotremes and Marsupials: A Reference for Zoological Institutions*. 323 pages, 56 figures. August 10, 1973. Paper: \$4.20.

Sidney Kaplan. *The Black Presence in the Era of the American Revolution, 1770-1800*. National Portrait Gallery. 258 pages, 98 figures. Published by the New York Graphic Society, Ltd., in association with the Smithsonian Institution Press. 1973. Cloth: \$15.00; paper: \$7.50.

*The American Experience: Smithsonian Institution American Revolution Bicentennial Program*. 50 pages. February 6, 1974.

*The Honey Bee*. National Museum of History and Technology. 20 pages, 7 illustrations. Reprint. June 1974.

#### ANNUAL REPORTS

*Annual Report of the American Historical Association for the Year 1972. Volume 1: Proceedings*. xvi + 166 pages. December 1973. Paper: \$1.80.



*Smithsonian Year 1973. Annual Report of the Smithsonian Institution for the Year Ended 30 June 1973.* viii + 343 pages. January 28, 1974. Paper: \$3.00.

*Smithsonian International Exchange Service, 1973 Annual Report.* 9 pages. May 30, 1974.

*Statement by the Secretary. The Smithsonian Institution, 1973.* "Look Backward, Lest you Fail to Mark the Path Ahead," and "Financial Report." iv + 44 pages. December 14, 1973.

## ART AND EXHIBITION CATALOGUES

*A Tribute to Mark Tobey*, Catalogue of the exhibition, National Collection of Fine Arts. 112 pages, 6 color and 70 black-and-white illustrations. June 7, 1974. Paper: \$5.85.

Edward Deming Andrews, Janet Malcolm, A. D. Emerich, and A. H. Benning. *Shaker: Furniture and Objects from the Faith and Edward Deming Andrews Collections Commemorating the Bicentenary of the American Shakers.* Catalogue of exhibition, Renwick Gallery of the National Collection of Fine Arts. 88 pages, 1 color and 65 black-and-white illustrations. October 30, 1973. Paper: \$3.75.

Robin Bolton-Smith and William H. Truettner. *Lilly Martin Spencer: The Joys of Sentiment, 1822-1902.* Catalogue of the exhibition, National Collection of Fine Arts. 254 pages, 5 color and 127 black-and-white illustrations. July 26, 1973. Paper: \$6.25.

Audrey B. Davis. *Triumph Over Disability: The Development of Rehabilitation Medicine in the U.S.A.* Catalogue of Exhibition, National Museum of History and Technology. 52 pages, 97 black-and-white illustrations. October 23, 1973. Paper: \$2.50.

Rachael Griffin and Martha Kingsbury. *Art of the Pacific Northwest from the 1930s to the Present.* Catalogue of the exhibition, National Collection of Fine Arts, 153 pages, 5 color and 138 black-and-white illustrations. February 1974. Paper: \$4.10.

*In the Minds and Hearts of the People: Prologue to the American Revolution, 1760-1774.* Catalogue, National Portrait Gallery. 60 pages, 26 black-and-white illustrations. June 1974. Paper: \$1.45.

Marchal E. Landgren. *Robert Loftin Newman, 1827-1912.* Catalogue of the exhibition, National Collection of Fine Arts. 191 pages, 3 color and 240 black-and-white illustrations. March 18, 1974. Paper: \$5.45.

Gerald Z. Levin and Jeanette M. Hussey. *President Monroe's Message: A Catalog Accompanying an Exhibition Commemorating the 150th Anniversary of the Monroe Doctrine, 1823-1973.* National Portrait Gallery. 128 pages, and 26 black-and-white illustrations. February 12, 1974. Paper: \$3.45.

Robert C. Mikesch and Claudia M. Oakes. *Exhibition Flight.* Catalogue of exhibition, National Air and Space Museum. 60 pages, 81 black-and-white illustrations. December 13, 1973. Paper: \$1.30.

*National Air and Space Museum: Pictorial guide to permanent exhibits.* 36 pages, 1 color and 35 black-and-white illustrations. July 1973. Paper: \$1.00.

Daniel Rhodes and Otto Natzler. *Form and Fire: Natzler Ceramics, 1939-1972.* Catalogue of exhibition, Renwick Gallery of the National Collection of Fine Arts. 124 pages, 39 color and 32 black-and-white illustrations. August 20, 1973. Paper: \$4.00.

*Steinberg at the Smithsonian: The Metamorphoses of an Emblem.* A book of drawings by the artist for the exhibition at the National Collection of Fine Arts. 43 pages, 9 color and 26 black-and-white illustrations. December 1973. Paper: \$1.55.

Lisa W. Strick. *The Black Presence in the Era of the American Revolution, 1770-1800.* Catalogue of the exhibition, National Portrait Gallery. 76 pages, 1 color and 58 black-and-white illustrations. August 31, 1973. Paper: \$2.05.

Roberta K. Tarbell. *Marguerite Zorach: The Early Years, 1908-1920.* Catalogue of the exhibition, National Collection of Fine Arts. 77 pages, 3 color and 43 black-and-white illustrations. December 6, 1973. Paper: \$2.90.

William H. Truettner and Robin Bolton-Smith. *National Parks and the American Landscape.* Catalogue of an exhibition at the National Collection of Fine Arts commemorating the centennial anniversary of the National Parks system. 148 pages, 3 color and 132 black-and-white illustrations. July 1973. Paper: \$3.25.

## MISCELLANY

### *Folders, Flyers, Booklets, Records*

*A Measure of Beauty: The Diffusion of Style in Early Nineteenth Century America.* Checklist of the exhibition. National Collection of Fine Arts. 10 pages, 1 illustration. July 3, 1973.

*Africa: Three Out of Many: Ethiopia, Ghana, Nigeria.* Foldout flyer. Anacostia Neighborhood Museum. 6 pages. September 17, 1973.

*Bicentennial Inventory of American Paintings Executed before 1914.* Foldout. National Collection of Fine Arts. 6 pages. Reprint. February 20, 1974.

*The Black Presence in the Era of the American Revolution: 1770-1800.* Folder. National Portrait Gallery. 4 pages, 2 illustrations. August 10, 1973.

*The Black Presence in the Era of the American Revolution, 1770-1800.* Portfolio, teacher's guide. National Portrait Gallery. 12-page booklet with 5 black-and-white illustrations, 8 separate color plates, 8 biography sheets. September 17, 1973.

*The Catalog of American Portraits.* Leaflet. National Portrait Gallery. 8 pages. October 18, 1973.

*Electricity and Physiology, Chemistry, Magnetism, Heat.* Information folder. National Museum of History and Technology. 4 pages. Reprint. November 5, 1973.

*Let's Go To The Smithsonian: Bulletin for Schools.* Folders. Office of Elementary and Secondary Education. September 1973-June 1974.

*Let's Go to the Smithsonian: Learning opportunities for schools 1973-74.* Portfolio. Office of Elementary and Secondary Education. 8-page booklet with 9 black-and-white illustrations, 5 1-page inserts. September 17, 1973.

*Life in the Universe.* Booklet. National Air and Space Museum. 10 pages. 5 illustrations. June 10, 1974.

*Lilly Martin Spencer: The Joys of Sentiment.* Checklist. National Collection of Fine Arts. 8 pages, 1 illustration. July 1973.

*Charles A. Lindbergh and the Spirit of St. Louis.* Information leaflet. National Air and Space Museum. 6 pages, 2 illustrations. Reprint. May 16, 1974.



*Modern American Woodcuts*. Checklist of the exhibition, National Collection of Fine Arts. 16 pages, 5 illustrations. December 10, 1973.

*Music Machines — American Style, Sounds of the Exhibition at the National Museum of History and Technology, Smithsonian Institution*. Record, 33 $\frac{1}{3}$  RPM, with jacket. October 1973. \$1.50.

*National Air and Space Museum*. Foldout building guide. Highlights of the exhibits and map. 10 pages, 10 illustrations. August 9, 1973.

*National Collection of Fine Arts*. Foldout building guide. 8 pages, 5 illustrations. Reprint. October 25, 1973.

*The National Collection of Fine Arts: A Museum of the Smithsonian Institution*. Folder gallery guide. 4 pages. October 25, 1973.

*National Collection of Fine Arts and Renwick Gallery. Information for Docents*. Portfolio with 20-page booklet. May 29, 1974.

*National Museum of History of Technology*. Foldout building guides in French, Spanish, and German. Office of Public Affairs. 8 pages. January 1974.

*National Museum of Natural History*. Foldout building guide. 9 pages. Reprint. September 17, 1973.

*National Museum of Natural History*. Foldout building guides in French, Spanish, and German. Office of Public Affairs. January 1974.

*National Portrait Gallery*. Information folder. 4 pages. August 20, 1973.

*NCFA Calendar*. July 1973-June 1974.

*Prang's American Chromos*. Folder. Division of Graphic Arts, National Museum of History and Technology. 4 pages, 1 illustration. August 23, 1973.

*Robert Loftin Newman: 1827-1912*. Checklist. National Collection of Fine Arts. 16 pages, 1 illustration. October 25, 1973.

*Selected Portraits of Prominent North American Indians*. Information folder. National Anthropological Archives. 4 pages. Reprint. June 1973.

*Services of the National Portrait Gallery Education Department*. Foldout flyer. 5 illustrations. 8 pages. December 3, 1973.

*Shaker: Renderings of Textiles and Costumes from the Index of American Design*. Booklet for the exhibition at the Renwick gallery. 8 pages, 16 illustrations. November 1, 1973.

*Shaker: The Heaven-Inspired Drawings*. Booklet for the exhibition at the Renwick gallery. 8 pages, 1 illustration. November 1, 1973.

*Smithsonian Institution*. Foldout guides in French, Spanish, and German. Office of Public Affairs. 10 pages, map, and illustrations. January 1974.

*Smithsonian Institution*. Foldout guide. Office of Public Affairs. 12 pages, map, and illustrations. Reprint. March 15, 1974.

*Smithsonian Institution Workshop Series*. Office of Museum Programs, Flyer folder. 6 pages. January 31, 1974.

*Vehicle Hall*. Foldout guide to exhibit. Museum of History and Technology. 6 pages, 3 illustrations. Reprint. October 18, 1973.

*Herman A. Webster Drawings, Watercolors, and Prints*. Checklist of the exhibition, National Collection of Fine Arts. 8 pages, 1 illustration. February 15, 1974.



*Wiley Post's "Winnie Mae."* Information leaflet. National Air and Space Museum. 8 pages. Reprint. May 1974.

*The Wright Brothers.* Information leaflet. National Air and Space Museum. 8 pages, 4 black-and-white illustrations. Reprint. May 28, 1974.

## SERIES PUBLICATIONS

### SMITHSONIAN CONTRIBUTIONS TO BOTANY

12. Stanwyn G. Shetler with Mary Jane Petrini, Constance Graham Carley, M. J. Harvey, Larry E. Morse, Thomas E. Kopfler, and Collaborators. "An Introduction to the Botanical Type Specimen Register." vi + 186 pages, 3 figures and frontispiece. August 3, 1973.

13. Daniel H. Janzen. "Swollen-Thorn Acacias of Central America." iii + 131 pages, 119 figures, 10 tables. April 23, 1974.

### SMITHSONIAN CONTRIBUTIONS TO THE EARTH SCIENCES

10. Louis H. Fuchs, Edward Olsen, and Kenneth J. Jensen. "Mineralogy, Mineral-Chemistry, and Composition of the Murchison (C2) Meteorite." iv + 39 pages, 19 figures and frontispiece. August 14, 1973.

11. Daniel J. Stanley and Peter Fenner. "Underwater Television Survey of the Atlantic Outer Continental Margin near Wilmington Canyon." ii + 54 pages, 18 figures. August 2, 1973.

12. Grant Heiken. "An Atlas of Volcanic Ash." iv + 101 pages, 15 figures, 33 plates, 3 tables. April 12, 1974.

### SMITHSONIAN CONTRIBUTIONS TO PALEOBIOLOGY

15. G. Arthur Cooper and Richard E. Grant. "Permian Brachiopods of West Texas, II." vii + 233–793 pages, figure 40, plates 24–191. April 16, 1974.

18. Robert J. Emry. "Stratigraphy and Preliminary Biostratigraphy of the Flagstaff Rim Area, Natrona County, Wyoming." iii + 43 pages, 19 figures and frontispiece. July 18, 1973.

20. Adam Urbanek and Kenneth M. Towe. "Ultrastructural Studies on Graptolites, 1: The Periderm and Its Derivatives in the Dendroidea and in *Mastigograptus*." iii + 48 pages, 2 figures, 30 plates, 2 tables. May 15, 1974.

### SMITHSONIAN CONTRIBUTIONS TO ZOOLOGY

120. Jerry A. Powell. "A Systematic Monograph of New World Ethmiid Moths (Lepidoptera: Gelechioidea)." iv + 302 pages, 294 figures, 22 plates. September 18, 1973.

127. Arthur G. Humes and Jan H. Stock. "A Revision of the Family Lichomolgidae Kossman, 1877, Cyclopoid Copepods Mainly Associated with Marine Invertebrates." v + 368 pages, 190 figures. November 12, 1973.

139. J. Laurens Barnard. "Gammaridean Amphipoda of Australia, Part II." v + 148 pages, 83 figures. February 15, 1974.

143. Florence A. Ruhoff. "Bibliography and Zoological Taxa of Paul Bartsch." With a Biographical Sketch by Harald A. Rehder. v + 166 pages. July 20, 1973.

145. James A. Peters. "The Frog Genus *Atelopus* in Ecuador (Anura: Bufonidae)." iii + 49 pages, 31 figures. July 19, 1973.
146. Thomas E. Bowman and Hans-Eckhard Gruner. "The Families and Genera of Hyperiidea (Crustacea: Amphipoda)." iv + 64 pages, 82 figures. December 31, 1973.
149. Michael H. Robinson and Barbara Robinson. "Ecology and Behavior of the Giant Wood Spider *Nephila maculata* (Fabricius) in New Guinea." iv + 76 pages, 30 figures, 11 tables. December 31, 1973.
150. Barbara Schuler Mayo. "A Review of the Genus *Cancellus* (Crustacea: Diogenidae) with the Description of a New Species from the Caribbean Sea." iii + 63 pages, 25 figures. August 31, 1973.
151. J. Laurens Barnard. "Revision of Corophiidae and Related Families (Amphipoda)." iv + 27 pages, 1 figure. August 14, 1973.
152. Storrs L. Olson. "Evolution of the Rails of the South Atlantic Islands (Aves: Rallidae)." iii + 53 pages, 8 figures, 11 plates. August 14, 1973.
153. Isabel Pérez Farfante and Harvey R. Bullis, Jr. "Western Atlantic Shrimps of the Genus *Solenocera* with Description of a New Species (Crustacea: Decapoda: Penaeidae)." ii + 33 pages, 19 figures. August 2, 1973.
154. Oscar L. Cartwright. "*Ataenius*, *Aphotaenius*, and *Pseudataenius* of the United States and Canada (Coleoptera: Scarabaeidae: Aphodiinae)." iv + 106 pages, 24 figures, 3 plates. May 15, 1974.
155. Richard Winterbottom. "The Familial Phylogeny of the Tetraodontiformes (Acanthopterygii: Pisces) as Evidenced by Their Comparative Myology." iv + 201 pages, 185 figures. March 12, 1974.
156. Leonila Alzate Corpuz-Raros and Edwin F. Cook. "A Revision of North American *Capitophorus* Van der Goot and *Pleotrichophorus* Börner (Homoptera: Aphididae)." iv + 143 pages, 494 figures. April 12, 1974.
157. William D. Field, Cyril F. dos Passos, and John H. Masters. "A Bibliography of the Catalogs, Lists, Faunal and Other Papers on the Butterflies of North America North of Mexico Arranged by State and Province (Lepidoptera: Rhopalocera)." ii + 104 pages. February 20, 1974.
158. Warren B. King, editor. "Pelagic Studies of Seabirds in the Central and Eastern Pacific Ocean." iv + 277 pages, 170 figures. June 12, 1974.
159. John S. Stephens, Jr., and Victor G. Springer. "Clinid Fishes of Chile and Peru, with Description of a New Species, *Myxodes ornatus*, from Chile." iii + 24 pages, 15 figures. January 21, 1974.
160. John R. Holsinger. "Systematics of the Subterranean Amphipod Genus *Stygobromus* (Gammaridae), Part I: Species of the Western United States." iii + 63 pages, 37 figures. March 12, 1974.
161. Roger F. Cressey and Hillary Boyle. "Five New Bomolochid Copepods Parasitic on Indo-Pacific Clupeid Fishes." ii + 25 pages, 73 figures. December 31, 1973.
164. Horton H. Hobbs, Jr. "Synopsis of the Families and Genera of Crayfishes (Crustacea: Decapoda)." iii + 32 pages, 27 figures. March 10, 1974.
165. Klaus Rützler. "The Burrowing Sponges of Bermuda." iii + 32 pages, 26 figures. February 15, 1974.

168. Paul D. Hurd, Jr., E. Gorton Linsley, and A. E. Michelbacher. "Ecology of the Squash and Gourd Bee, *Peponapis pruinosa*, on Cultivated Cucurbits in California (Hymenoptera: Apoidea)." iii + 17 pages, 4 figures, 8 tables. May 23, 1974.

171. D. M. Tuttle, E. W. Baker, and M. Abbatiello. "Spider Mites from Northwestern and North Central Mexico (Acarina: Tetranychidae)." 18 pages, 28 figures. May 15, 1974.

174. Alejandro Villalobos Figueroa and Horton H. Hobbs, Jr. "Three New Crustaceans from La Media Luna, San Luis Potosí, Mexico." iii + 18 pages, 8 figures. June 28, 1974.

#### SMITHSONIAN STUDIES IN HISTORY AND TECHNOLOGY

21. Grace Rogers Cooper. "Thirteen-Star Flags: Keys to Identification." vii + 62 pages, 25 figures and frontispiece. November 6, 1973.

24. Smith Hempstone Oliver and Donald H. Berkebile. "Wheels and Wheeling: The Smithsonian Cycle Collection." v + 104 pages, illustrated. April 23, 1974.

25. John H. White, Jr. "American Single Locomotives and the 'Pioneer.'" v + 50 pages, 52 figures and frontispiece. September 19, 1973.

26. Robert M. Vogel, editor. "A Report of the Mohawk-Hudson Area Survey: A Selective Recording Survey of the Industrial Archeology of the Mohawk and Hudson River Valleys of Troy, New York, June-September 1969." ix + 210 pages, 141 figures. September 25, 1973.

27. Helen R. Hollis. "Pianos in the Smithsonian Institution." iv + 47 pages, 23 figures. December 31, 1973.

#### CONTRIBUTIONS FROM THE UNITED STATES NATIONAL HERBARIUM

Volume 38, Part 6. C. V. Morton. "Studies of Fern Types, II." Pages 215-281. December 31, 1973.

#### ATOLL RESEARCH BULLETINS

166-170. In one volume, as follows. November 23, 1973.

166. Peter J. Vine. "Crown of Thorns (*Acanthaster planci*) Plagues: The Natural Causes Theory." 14 pages, 4 figures.

167. R. Endean and W. Stablum. "A Study of Some Aspects of the Crown-of-Thorns Starfish (*Acanthaster planci*) Infestations of Reefs of Australia's Great Barrier Reef." iii + 76 pages, 22 figures.

168. R. Endean and W. Stablum. "The Apparent Extent of Recovery of Reefs of Australia's Great Barrier Reef Devastated by the Crown-of-Thorns Starfish. iii + 37 pages, 23 figures.

169. Dennis M. Devaney and John E. Randall. "Investigations of *Acanthaster planci* in Southeastern Polynesia During 1970-1971." ii + 35 pages, 5 plates, 13 figures.

170. James A. Marsh, Jr., and Roy T. Tsuda. "Population Levels of *Acanthaster planci* in the Mariana and Caroline Islands, 1969-1972." 16 pages.

171. Charles A. Ely and Roger B. Clapp. "The Natural History of Laysan Island, Northwestern Hawaiian Islands." xi + 362 pages, 42 figures, 83 tables, 32 appendix tables. December 31, 1973.



APPENDIX 8. *Publications and Selected Contributions of the  
Smithsonian Institution Staff in Fiscal Year 1974*

SPECIAL PROJECTS, OFFICE OF THE SECRETARY

LECTURES

- Goode, James M. "The Outdoor Sculpture of Downtown Washington, D.C." Smithsonian Associates, July 5, 11, 18, 25, and August 1, 1973.
- . "The Military Sculpture of Washington, D.C." U.S. Marine Corps General Officers Society, July 10, 1973.
- . "The Architectural History of Georgetown, Washington, D.C." American Bar Association, August 3, 1973.
- . "The History of the Smithsonian Institution Building." Smithsonian Volunteers, September 12, 1973.
- . "The Architectural History of Charlottesville, Virginia." International Numismatic Congress, September 16, 1973.
- . "The Early Outdoor Sculpture of Washington, D.C., 1807-1870." The Caroline County Historical Society, Bowling Green, Virginia, September 30, 1973.
- . "The Victorian Architecture of Downtown Washington, D.C." University of Virginia School of Architectural History, October 12, 1973.
- . "The Architectural History of Richmond, Virginia." Smithsonian Associates, October 19 and November 24, 1973.
- . "The Architectural History of Lancaster, Pennsylvania." Smithsonian Associates, March 22, 1974.
- . "The Georgian Architecture of Annapolis, Maryland." Smithsonian Associates, April 27, 1974.
- . "Washingtoniana as a Field for Research." The Junior League of Washington, D.C., May 16, 1974.
- . "The Architectural History of the Smithsonian Institution Building." The American Institute of Architects, May 21, 1974.
- . "The Victorian Furniture Collection in the Smithsonian Institution Building." The Citizens for Maine Preservation, Portland, Maine, June 16, 1974.

SCIENCE

CHESAPEAKE BAY CENTER FOR ENVIRONMENTAL STUDIES

- Correll, David L., Maria A. Faust, and D. J. Severn. "Phosphorus Flux and Cycling in Estuaries." Presented at the Second International Research Conference, Myrtle Beach, S.C., October 1973.
- Cory, Robert L. "Changes in Oxygen Production in the Patuxent Estuary, Maryland, 1963 through 1969." *Chesapeake Science*, volume 15, number 2 (1974), pages 78-83.
- Cory, Robert L., and Michael Redding. "Mortality of the Commercial Clam *Mya Aernaria* and Tropical Storm Agnes." Presented at the Chesapeake Research Consortium's Symposium on the Effects of Tropical Storm Agnes on the Chesapeake Bay Estuarine System, College Park, Md., May 1974.

- . "Tropical Storm Agnes and Water Quality of Rhode River." Presented at the Chesapeake Research Consortium's Symposium on the Effects of Tropical Storm Agnes on the Chesapeake Bay Estuarine System, College Park, Md., May 1974.
- Crawford, C. C., J. E. Hobbie and K. L. Webb. "The Utilization of Dissolved Free Amino Acids by Estuarine Microorganisms." *Ecology*, volume 55, number 3 (1974), pages 551-563.
- Falk, John H. *The Lawn*. The Regents of the University of California, 63 pages, 1973.
- . *Lawn Guide*. The Regents of the University of California, 23 pages, 1973.
- . "Life in Early California: A New Approach to the Outdoor Field Trip." *Science and Children*, volume 11, number 3 (1973), pages 18-19.
- . "Wheeling Your Way Through the Outdoors." *Science and Children*, volume 12 (1974).
- Kinsman, Dorothy L. "Chesapeake Bay Center for Environmental Studies." *Maryland Conservationist*, volume 50, number 1 (1974), pages 4-8.

### NATIONAL AIR AND SPACE MUSEUM

- Collins, Michael. "Aerospace on the Mall." *Aerospace*, official publication of the Aerospace Industries Association, volume 11, number 2 (June 1973), pages 12-17.
- Zisfein, M. B. [Book Review] "Our World in Space," Robert McCall and Isaac Asimov, *Smithsonian Magazine*, 1974.
- Zisfein, M. B., and D. S. Lopez. "Exhibition Flight." Introductory text, 13 pages. Smithsonian Institution Press, 1973.

### Aeronautics Department

- Mikesh, Robert C. "Aircraft in Museums Around the World." Sections 1 and 2, second edition. (Multilith.)
- Mikesh, Robert C., and Claudia M. Oakes. "Exhibition Flight." 56 pages, 82 figures, 1973.

### Astronautics Department

- Doster, Alexis, III. "Life in the Universe." Smithsonian Institution Press. 12 pages, 5 illustrations. June 1974.

### Center for Earth and Planetary Studies

- El-Baz, Farouk. "The Moon: International Astronomical Union Symposium." D. Reidel, Holland, *Icarus*, volume 19, number 4 (1973), pages 614-615.
- . "Astrogeology. A Special Issue on Earth Science: The View from '74." *Geotimes*, volume 19, number 1 (1974), pages 14-16.
- . "The New Moon." 140th Annual Meeting of the American Association for the Advancement of Science, *AAAS Program* (1974), page 6.
- . "'D-Caldera': New Photography of a Unique Feature." *Apollo 17 Preliminary Science Report*, NASA SP-330, chapter 30, part D (1974), pages 30-13 to 30-17.
- . "Aitken Crater and Its Environs." *Apollo 17 Preliminary Science Report*, NASA SP-330, chapter 33, part B (1974), pages 32-8 to 32-12.
- El-Baz, Farouk, and R. E. Evans. "Observations of Mare Serenitatis from Lunar Orbit and Their Interpretation." MIT Press, *Proceedings of the Fourth Lunar Science Conference*, volume 1 (1973), pages 139-147.
- Evans, R. E., and F. El-Baz. "Geological Observations from Lunar Orbit." *Apollo 17 Preliminary Science Report*, NASA SP-330, chapter 28 (1974), pages 28-1 to 28-32.

- Mattingly, T. K., and F. El-Baz. "Orbital Observations of the Lunar Highlands on Apollo 16 and Their Interpretation." MIT Press, *Proceedings of the Fourth Lunar Science Conference*, volume 1 (1973), pages 49-56.
- Ward, S. H., F. El-Baz, T. A. Maxwell, W. J. Peeples, and W. R. Sill. "Radar Description of Lunar Surface Features." Geological Society of America, *Abstracts with Programs*, volume 5, number 7 (1973), page 855.

#### LECTURES

- Durant, F. C., III. "Robert H. Goddard and the Roswell Years (1930-1941)." 24th Congress of the International Astronautical Federation, Baker, U.S.S.R., October 1973.
- Winter, Frank H. "Camera Rockets and Space Photography Before World War II." 24th Congress of the International Astronautical Federation, Baker, U.S.S.R., October 1973.
- Zisfein, M. B. "The National Air and Space Museum." American Air Mail Society Golden Anniversary, Washington, D.C., September 1973.
- . "The National Air and Space Museum." Aero Club of Buffalo, Buffalo, N.Y., October 1973.
- . "Air Traffic Control." Smithsonian Associates, Washington, D.C., March 1973.
- . "The National Air and Space Museum." Smithsonian Associates, Washington, D.C., June 1974.

#### NATIONAL MUSEUM OF NATURAL HISTORY

##### *Department of Anthropology*

- Angel, J. Lawrence. "Human Skeletons from Grave Circles at Mycenae." Appendix, pages 379-397, in *Grave circle B of Mycenae* by George E. Mylonas. The Archaeological Society of Athens, 1973.
- . "Neolithic Human Remains." Appendix, pages 277-282, in "Excavations in the Franchthi Cave, 1969-1971, Part II," by Thomas W. Jacobsen. *Hesperia*, volume 42, number 3 (1973), pages 253-283.
- . "Late Bronze Age Cypriotes from Bamboula." Appendix, pages 148-165, in *Bamboula at Kourion* by Jack L. Benson. Museum Monographs, University of Pennsylvania Press, Philadelphia, 1973.
- . "The Cultural Ecology of General Versus Dental Health." Chapter, pages 382-391, in *Biology of human populations. Contributions to their structure and dynamics* (*Bevölkerungsbiologie. Beiträge zur Struktur und Dynamik menschlicher Populationen in anthropologischer Sicht.*), edited by Wolfgang Bernhard und Anneliese Kandler. Stuttgart: Gustav Fischer Verlag, 1974. (Festschrift for Professor Ilse Schwidetzky).
- Angel, J. Lawrence, with Michael Finnegan and Henry W. Setzer. "Bones Can Fool People." *F.B.I. Law enforcement bulletin*, volume 43, number 1 (1974), pages 16-20, 30.
- William H. Crocker. "Xicrin-Brazil." Pages 22-31, volume 6 (*Amazonia, Orinoco, and Pampas*), in *Peoples of the Earth*, editorial director, Tom Stacey. Danbury, Connecticut: The Danbury Press (Grolier Enterprises Inc.), 1973.
- . "Extramartial Sexual Practices of the Ramkokamekra-Canela Indians: An Analysis of Socio-cultural Factors." Pages 184-194 in *Native South Americans: Ethnology of the Least Known Continent*. Patricia J. Lyon, editor. Boston, Massachusetts: Little, Brown & Company, 1974. [A republication from an obscure 1964 source.]



- Evans, Clifford, and Betty J. Meggers. "United States 'Imperialism' and Latin American Archeology." *American Antiquity*, volume 38 (1973), pages 257-258.
- . "Imperialismo Norteamericano y Arqueologia Latinoamericana." *Boletín del Instituto Montecristeno de Arqueología*, number 1, pages 11-13, Republica Dominicana, 1973.
- Ewers, John C. *Artists of the Old West* (enlarged and revised edition). 240 pages, 194 illustrations, 44 in color. Garden City, New York: Doubleday and Company, 1973.
- . *Blackfeet and Gros Ventres Tribes in Northern Montana, 1888*. Indian Claims Commission Testimony, Docket 279-A. 183 pages. Microfiche publication. New York: Clearwater Publishing Company, Inc., 1973.
- . *Chippewa Cree and Little Shell Lands in Montana, 1888*. Indian Claims Commission Testimony, Docket 221-B. 170 pages. Microfiche publication. New York: Clearwater Publishing Company, Inc., 1973.
- . "Symbols of Chiefly Authority in Spanish Louisiana." Pages 272-284, 2 plates, in *The Spanish in the Mississippi Valley, 1762-1804*, edited by John Francis McDermott. Urbana: University of Illinois Press, 1974.
- Fitzhugh, William. "Smithsonian Archeological Investigations on the Central Labrador Coast in 1973: A Preliminary Report." *Canadian Archaeological Associations, Bulletin* number 5 (1973), pages 77-90.
- . Culture History and Ecology of Prehistoric Maritime Cultures of Scandinavia. *American Philosophical Society, Yearbook* 1973 (1974).
- . "Hound Pond 4: A Charles Complex Site in Groswater Bay, Labrador, Man in the Northeast, page 7, 1974.
- Knez, Eugene I. "A South Korean Village: Sam Jong Dong." Syracuse University, Ph.D. dissertation, 1959: Human Relations Area Files, 1974.
- Laughlin, Robert M., with Brent Berlin, Dennis E. Breedlove, and Peter H. Raven. "Cultural Significance and Lexical Retention in Tzeltal-Tzotzil Ethnobotany." Pages 143-164 in *Meaning in Mayan Languages; Ethnolinguistic Studies*, edited by Munro S. Edmonson. The Hague: Mouton, 1973.
- Meggers, Betty J., and Clifford Evans (contributing editors). "Archaeology: South America." *Handbook of Latin American Studies*, number 35, pages 46-69. Gainesville, Florida: University of Florida Press. 1973.
- Ortner, D. J., and D. W. Von Endt. "Electron Probe Microanalysis of the Primary Spongiosa in Human Feotal Bone." *Ninth European Symposium on Calcified Tissues*, Baden, Austria, October 1972.
- Stewart, T. Dale. "The Indians of the Americas: Myths and Realities." *Revista Interamericana*, volume 3, number 1 (1973), pages 42-54.
- Sturtevant, William C. "Studies in Ethnoscience." Pages 39-59 in *Culture and Cognition: Readings in Cross-Cultural Psychology*, edited by J. W. Berry and P. R. Dasen. London: Methuen and Company, Ltd., 1974. (A partial reprint of article first published in *American Anthropologist*, volume 66, number 3, part Z, 1964.)
- Trousdale, William. "Helmand-Sistan Project: Carved Decorative and Inscribed Bricks from Bust." *East and West*, new series, volume 22, numbers 1-2 (1972), pages 215-226. Rome, November 1973.
- Ubelaker, Douglas H. "The Reconstruction of Demographic Profiles from Ossuary Skeletal Samples: A Case Study From the Tidewater Potomac." *Dissertation Abstracts International*, volume 34, number 6 (1973).
- Van Beek, Gus. "The Vaulted Assyrian Building at Tell Gemmah." *Qadmoniot*, volume 6, number 1 (1973), pages 23-27.
- Viola, Herman J. Introduction to a reprint of *Thomas L. McKenney Memoirs, Official and Personal*. University of Nebraska Press, 1974.

- . "Some Recent Writings on the American Indian." *American Archivist*, volume 37, number 1 (January 1974), pages 51-54.
- Von Endt, D. W., P. E. Hare, and D. J. Ortner. "Environmental Factors Which Affect Protein Decomposition in Archeological Specimens." *Proceedings of the Society of American Archaeologists*, volume 59 (1974).

### Department of Botany

- Ahmadjian, V., and M. E. Hale, editors. *The Lichens*. New York: Academic Press, 1973.
- Ayensu, Edward S. "Biological and Morphological Aspects of the Velloziaceae." *Biotropica*, volume 4, number 3 (1973), pages 135-149.
- . "Comments on Old and New World Dioscoreas of Commercial Importance." *Primer Simposio Internacional Sobre Dioscoreas*, number 8, 1972 (1974), pages 77-81.
- Bowers, Frank D., A. J. Sharp, and Harold Robinson. "Additional Mosses from Costa Rica and Mexico." *The Bryologist*, volume 76 (1973), page 447-449.
- Cowan, R. S. "Herbaria as Data-banks." *Arnoldia*, volume 33 (1973), pages 3-11.
- . "A New Swartzia from Suriname." *Phytologia*, volume 26, number 4 (1973), pages 279-280.
- . "A Revision of the Genus *Bocoa* (Caesalpinioideae-Swartzieae)." *Proceedings of the Biological Society of Washington*, volume 87, number 13 (1974), 39 pages, 14 figures.
- . "Studies of Tropical American Leguminosae VII." *Proceedings of the Biological Society of Washington*, volume 86, number 39 (1973), pages 447-460.
- Cowan, Richard S., and Lyman B. Smith. "Rutaceae." *Flora Illustrada Catarinense*, part 1, fascicle RUTA (November 1973), pages 1-89, plates 1-23.
- Cuatrecasas, J. "Miscellaneous Notes on Neotropical Flora IV." *Phytologia*, volume 27, number 1 (1973), pages 41-57.
- . "Miscellaneous Notes on Neotropical Flora V." *Phytologia*, volume 27, number 3 (1973), pages 169-179.
- . "Supplemental Characterization of Genus *Pseudoconyza* (Compositae, Inuleae-Pluchinae)." *Phytologia*, volume 26, number 6 (1973), pages 410-412.
- Cuatrecasas, J., and D. N. Porter. "A New Species of *Brunellia* from Panamá." *Phytologia*, volume 26, number 6 (1973), pages 485-486.
- Culberson, C. F., and M. E. Hale, Jr. "4-O-Demethylnotatic Acid, a New Depsidone in Some Lichens Producing Hypoprotocetraric Acid." *Bryologist*, volume 76 (1973), pages 77-84.
- . "Chemical and Morphological Evolution in *Parmelia* Sect. *Hypotrachyna*: Product of Ancient Hybridization?" *Brittonia*, volume 25 (1973), pages 162-173.
- Dahl, Arthur L. "Benthic Algal Ecology in a Deep Reef and Sand Habitat off Puerto Rico." *Botanica Marina*, volume 16 (1973), pages 171-175.
- . "Biological Proportions." *Science*, volume 181 (1973), page 469.
- . "Surface Area in Ecological Analysis: Quantification of Benthic Coral Reef Algae." *Marine Biology*, volume 23 (1973), pages 239-249.
- Eyde, Richard H., and Judy T. Morgan. "Floral Structure and Evolution in *Lopezieae* (Onagraceae)." *American Journal of Botany*, volume 60 (1973), pages 771-787.
- Fosberg, F. Raymond. "Geomorphic Cycle on Aldabra — Hypothesis." Pages 469-475 in C. Mukundan and C. S. Gopinadha Pillai, editors, *Proceedings of the Symposium on Corals and Coral Reefs, 1969*. Cochin: Marine Biological Association of India, 1972.



- . "The Name of the Octopus Tree." *Baileya*, volume 19 (1973), pages 45-46.
- . "On Present Condition and Conservation of Forests in Micronesia." In *Symposium: Planned Utilization of the Lowland Tropical Forests, August 1971*. Bogor, Indonesia: Pacific Science Association Standing Committee on Pacific Botany, 1973.
- . "Sketch of the St. Croix Flora." In H. Gray Multer and Lee C. Gerhard, editors, *Guidebook to the Geology and Ecology of Some Marine and Terrestrial Environments, St. Croix, U.S. Virgin Islands*. Christiansted: West Indies Laboratory of the Fairleigh Dickinson University, 1974.
- . "Type Specimens of *Buxus Sempervirens* Linnaeus." *Boxwood Bulletin*, volume 13, number 2 (1973), pages 18-21.
- . "Vascular Plants — Widespread Island Species." Pages 167-169 in A.B. Costin and R. H. Groves, editors, *Nature Conservation in the Pacific*. Canberra: Australian National University Press, 1973.
- Osberg, F. Raymond, and Marie-Hélène Sacht. "Past, Present and Future Conservation Problems of Oceanic Islands." Pages 209-215 in A. B. Costin and R. H. Groves, editors, *Nature Conservation in the Pacific*. Canberra: Australian National University Press, 1973.
- . "Remarks on *Halophila* (Hydrocharitaceae)." *Taxon*, volume 22 (1973), pages 439-443.
- Hale, Mason E., Jr. "Studies on the Lichen Family Thelotremataceae 1." *Phytologia*, volume 26 (1973), pages 413-420.
- . "Growth." Pages 473-492 in *The Lichens*, edited by V. Ahmadjian and M. E. Hale. New York: Academic Press, 1973.
- . "New Parmeliae (Lichens) from Africa. 2." *Phytologia*, volume 27 (1974), pages 1-6.
- . "Studies on the Lichen Family Thelotremataceae 2." *Phytologia*, volume 27 (1974), pages 490-501.
- King, R. M., and Robinson, H. "Studies in the *Eupatorieae* (Asteraceae). CXII. A new species of *Ferreyrella*." *Phytologia*, volume 26 (1973), pages 167-169.
- . "Studies in the *Eupatorieae* (Asteraceae). CXIII. A new genus, *Matudina*." *Phytologia*, volume 26 (1973), pages 170-173.
- . "Studies in the *Eupatorieae* (Asteraceae). CXIV. The genera of Barro Colorado Island, Panama." *Phytologia*, volume 27 (1973), pages 233-240.
- . "Studies in the *Eupatorieae* (Asteraceae). CXV. A new genus and species, *Pseudokyrsteniopsis perpetiolata*." *Phytologia*, volume 27 (1973), pages 241-244.
- . "Studies in the *Eupatorieae* (Asteraceae). CXVI. New species of *Neomirandea*." *Phytologia*, volume 27 (1973), pages 245-251.
- . "Studies in the *Eupatorieae* (Asteraceae). CXVII. A new species of *Oxylobus* from Oaxaca, Mexico." *Phytologia*, volume 27 (1974), pages 385-386.
- . "Studies in the *Eupatorieae* (Asteraceae). CXVIII. New species of *Ageratum*, *Fleischmannia* and *Hebeclinium* from northern South America." *Phytologia*, volume 27 (1974), pages 387-394.
- . "Studies in the *Eupatorieae* (Asteraceae). CXIX. Additions to the genera *Cronquistianthus*, *Helogyne* and *Neocuatrecasia* from Peru." *Phytologia*, volume 27 (1974), pages 395-401.
- Welling, David B. "Conrad Vernon Morton (1905-1972)." *American Fern Journal*, volume 63, number 3 (1973), pages 49-60.
- Nicolson, D. H., and R. A. Brooks. "Orthography of Names and Epithets: Stems and Compound Words." *Taxon*, volume 23, number 1 (February 1974), pages 163-177.



- Nowicke, J. W. "Two New Species of *Besleria* (Gesneriaceae) from Panama." *Brittonia*, volume 26 (1974), pages 37-41.
- Read, Robert W. "The Ecology of the Palms." *Principes*, volume 18, number 2 (April 1974), pages 39-50.
- . "Tillandsia adamsii, A New Jamaican Species." *Phytologia*, volume 28, number 1 (May 1974), pages 21-23.
- Robinson, H. "Additions to the Genus *Tagetes* (Helenieae, Asteraceae)." *Phytologia*, volume 26 (1973), pages 378-380.
- . "New Combinations in the Cactaceae Subfamily Opuntioideae." *Phytologia*, volume 26 (1973), pages 175-176.
- . "Scanning Electron Microscope Studies of the Spines and Glochids of the Opuntioideae (Cactaceae)." *American Journal of Botany*, volume 61 (1974), pages 278-283.
- . "Two New Species of *Enlinia* from the Southwestern United States (Diptera: Dolichopodidae)." *Proceedings of the Entomological Society of Washington*, volume 75 (1973), pages 419-422.
- Robinson, H., and R. D. Brettell. "A New Species of *Senecio* from Costa Rica." *Phytologia*, volume 26 (1973), page 454.
- . "Studies in the Senecioneae (Asteraceae). I. A New Genus, *Pittocaulon*." *Phytologia*, volume 26 (1973), pages 451-453.
- . "Studies in the Senecioneae (Asteraceae). II. A New Genus, *Nelsonianthus*." *Phytologia*, volume 27 (1973), pages 53-54.
- . "Studies in the Liabeae (Asteraceae). I. A New Species of *Liabum* from Mexico." *Phytologia*, volume 27 (1973), pages 252-253.
- . "Studies in the Senecioneae (Asteraceae). III. The Genus *Psacalium*." *Phytologia*, volume 27 (1973), pages 254-264.
- . "Studies in the Senecioneae (Asteraceae). IV. The Genera *Mesadenia*, *Syneilesis*, *Miricacalia*, *Koyamacalia* and *Sinacalia*." *Phytologia*, volume 27 (1973), pages 265-276.
- . "Studies in the Senecioneae (Asteraceae). V. The Genera *Psacaliopsis*, *Barkleyanthus*, *Telanthophora* and *Roldana*." *Phytologia*, volume 27 (1974), pages 402-439.
- . "Tribal Revisions in the Asteraceae. V. The Relationship of *Rigiopappus*." *Phytologia*, volume 26 (1973), pages 69-70.
- . "Tribal Revisions in the Asteraceae. VI. The Relationship of *Eriachaenium*." *Phytologia*, volume 26 (1973), pages 71-72.
- . "Tribal Revisions in the Asteraceae. VII. The Relationship of *Isoetopsis*." *Phytologia*, volume 26 (1973), pages 73-75.
- . "Tribal Revisions in the Asteraceae. VIII. A New Tribe, Ursinieae." *Phytologia*, volume 26 (1973), pages 76-85.
- . "Tribal Revisions in the Asteraceae. IX. The Relationship of *Ischnea*." *Phytologia*, volume 26 (1973), pages 153-158.
- . "Tribal Revisions in the Asteraceae. X. The Relationship of *Plagiocheilus*." *Phytologia*, volume 26 (1973), pages 159-162.
- . "Tribal Revisions in the Asteraceae. XI. A New Tribe, Eremothamneae." *Phytologia*, volume 26 (1973), pages 163-166.
- Robinson, H., and J. Cuatrecasas. "Synopsis of the Genus *Philoglossa* (Liabiae, Asteraceae)." *Phytologia*, volume 26, number 5 (1973), pages 381-388.
- . "The Generic Limits of *Pluchea* and *Tessaria* (Inuleae, Asteraceae)." *Phytologia*, volume 27, number 4 (1973), pages 277-285.
- Robinson, H., and C. Delgadillo M. "*Neosharpiella*, a New Genus of Musci from High Elevations in Mexico and South America." *The Bryologist*, volume 76 (1973), pages 536-540.

- Robinson, H., and C. F. Reed, "A New Species of *Vernonia* from Mexico." *Phytologia*, volume 27 (1973), page 52.
- Sachet, M.-H. "The Discovery of *Lebronnecia kokioides*." *Bulletin, Pacific Tropical Botanical Garden*, volume 3, number 3 (1973), pages 41-43.
- Sachet, M.-H., and F. R. Fosberg, "Remarks on *Halophila* (Hydrocharitaceae)." *Taxon*, volume 22, number 4 (1973), pages 439-443.
- Shetler, Stanwyn G. "Demythologizing Biological Data Banking." *Taxon*, volume 23, number 1 (February 1974), pages 71-100.
- . "Nepenthales." In *Encyclopaedia Britannica* (March 1974).
- . "Sarraceniales." In *Encyclopaedia Britannica* (March 1974).
- Shetler, Stanwyn G., Robert W. Read (editors), Larry E. Morse, Fonda R. Hivick (assistant editors), Judith E. Monahan, and Thomas E. Kopfler (analyst/programmers). "International Index of Current Research Projects in Plant Systematics, Number 7." *Flora North America Report*, number 71 (December 1973), xxii + 118 pages.
- Simpson, Beryl B. "Contrasting Modes of Evolution in Two Groups of *Perezia* (Multisieae; Compositae) of Southern South America." *Taxon*, volume 22 (1973), pages 525-536.
- . "Women in Botany." *Plant Science Bulletin*, volume 19 (1973), pages 22-23.
- Skog, L. E. "Conrad Morton's publication on the Gesneriaceae." *The Gloxinian*, volume 24, number 2 (1974), pages 33-35.
- . "A New Colombian Species of *Besleria* (Gesneriaceae)." *Phytologia*, volume 27, number 6 (1974), pages 502-503.
- . "Valid Publication of *Nautilocalyx picturatus* [Gesneriaceae]." *Baileya*, volume 19, number 3 (1974), pages 118-122.
- Smith, Lyman B. "Begonia of Venezuela." *Phytologia*, volume 27, number 4 (December 1973), pages 209-227, plates 1-9.
- . "Eizi Matuda." *Journal of the Bromeliad Society*, volume 24, number 2 (1974), pages 59-62, 3 figures.
- . "A New Bromeliad Monograph." *Journal of the Bromeliad Society*, volume 23, number 4 (1973), pages 127-129.
- . "*Vriesea rubra*, the Gay Deceiver." *Journal of the Bromeliad Society*, volume 24, number 1 (1974), pages 30-31, 2 figures.
- Smith, Lyman B., and Edward S. Ayensu. "Classification of the Old World Velloziaceae." *Kew Bulletin*, volume 29, number 1 (1974), pages 183-207.
- Soderstrom, T. R., and H. F. Decker. "*Calderonella*, a New Genus of Grasses and Its Relationship to the Centrostecoid Genera." *Annals of the Missouri Botanical Garden*, volume 60, number 2 (1973), pages 427-441.
- Steyskal, G. C., H. Robinson, H. Ulrich, and R. L. Hurley. "*Hydrophorus* Fallen, 1823 (Insecta, Diptera, Dolichopodidae): Request for Suppression Under the Plenary Powers of the Designation by Macquart, 1827, of *H. Jaculus* Fallen as Type of the Genus in Favour of *H. Nebulosus* Fallen in Order to Conserve Consistent Usage." *Bulletin of Zoological Nomenclature*, volume 30 (1973), pages 118-120.
- Thomas, John H., and Stanwyn G. Shetler. "Wallace Roy Ernst, 1928-1971." *Madrono*, volume 22, number 4 (October 1973), pages 207-213.
- Wasshausen, Dieter C. "Two Additional New Species of *Aphelandra* (Acanthaceae)." *Phytologia*, volume 26 (1973), pages 393-396.
- . "New Combinations in Cultivated *Justicia* (Acanthaceae)." *Baileya*, volume 19 (1973), pages 1-3.
- Wurdack, John J. "Certamen Melastomataceis XXII." *Phytologia*, volume 26, number 6 (September 1973), pages 397-409.



- . "Uma Nova Melastomataceae de Minas Gerais." *Museu Botânica Municipal, Curitiba, Paraná, Brasil, Boletim*, número 10 (October 1973), pages 1-3.
- . "Melastomataceae." *Flora de Venezuela*, volume 8 (December 1973), pages 1-819 (Memecyleae, pages 738-773 by T. Morley).

#### LECTURES AND SEMINARS

- Ayensu, Edward S. "Plant and Bat Interactions in West Africa." The 20th Annual Systematic Symposium in St. Louis, October 27, 1973. Similar lectures at the University of Ghana and the University of Cape Coast in November.
- . "Edible and Sapogenin-Bearing Yams," The International Institute of Tropical Agriculture in Ibadan, Nigeria, and at the Crops Research Institute in Kumasi, Ghana, November 1973.
- . "Social Responsibilities of West African Science Association." Conference in Dakar, Senegal, March 1974.
- . "Orchids." Class to the Smithsonian Associates (6 lectures), January-February 1974.
- Eyde, Richard H. "The Bases of Angiosperm Phylogeny." At the annual meeting of the American Institute of Biological Sciences, Amherst, Massachusetts, June 1974, critically examined the contribution of interpretive floral anatomy to angiosperm phylogeny.
- . "Foibles, Fallacies, and Famous Figures in Floral Morphology." Botanical Society of Washington, December 1973. Address traced the history of current theoretical difficulties in floral structure. Subsequently given to seminar groups at the University of Delhi, India (February 1974), and at the University of Hawaii (April 1974).
- Dahl, Arthur L. "The Roles of Algae in the Coral Reef Ecosystem: Generation and Control of Surface Area." International Symposium on Indo-Pacific Tropical Reef Biology, June 1974.
- Fosberg, F. R. "Terrestrial Floras of Coral Islands." Second International Symposium on Coral Reefs, Great Barrier Reef, Australia, July 1973.
- . "Flora, Fauna and Ecology of Ceylon." The Asia Society. December 1973. Similar lectures were given at the Brooklyn Botanical Garden and the West Indies Laboratory of Fairleigh Dickinson University.
- . "Ecology and Conservation of Aldabra Island." University of Richmond, March 1974.
- Hale, Mason E. "Use of the Scanning-electron Microscope in Lichen Research." Duke University, March 1974.
- . "Lichen Structures Viewed with the Scanning-electron Microscope." International Symposium, British Systematics Association, Bristol, England, and at the University of Minnesota, April 1974.
- Nicolson, Dan H. Informal seminars on nomenclature, particularly determining gender of specific epithets and latinization of personal names. Four lectures on Greek in connection with determining gender of generic names. All these were done within the Department of Botany, Smithsonian Institution.
- Nowicke, Joan W. "Pollen Morphology as a Systematic Tool." University of Ceylon, July 1973.
- Read, Robert W. "*Phalaenopsis* and Other Orchid Things." National Capitol Orchid Society, September 1973.
- . "House Plants from African Violets to *Zamia*." Cheverly Garden Club, Maryland, October 1973.
- . "Here a Palm, There a Palm." Balboa Park, San Diego, California, for the Western Chapter of the Palm Society, March 1974. An illustrated lecture on palms around the world, their variability and hardiness.



- . "Spring Flower Botany, or Basic Botany for Beginners." Classes for the Smithsonian Associates, April–June 1974.
- Shetler, Stanwyn G. "Botanical Exploration in Alaska." Summer program for exceptional high school students, Mary Baldwin College, Staunton, Virginia, July 11, 1973.
- . "Status of Flora North American Program." Special Interest Group on Flora North America, International Congress of Systematic and Evolutionary Biology (ICSEB), University of Colorado, Boulder, August 7, 1973.
- . "Demythologizing Biological Data Banking." Symposium on "Computer Revolution in Systematics," ICSEB, August 10, 1973.
- . "Problems of Handling Intraspecific Variation in a Floristic Data Bank." Special Interest Group on "The Taxonomic Treatment of Intraspecific Information," ICSEB, August 11, 1973.
- . "A Generalized Descriptive Data Bank as a Basis for Computer-Assisted Identification." Symposium on "Automatic Identification," King's College, Cambridge University, Cambridge, England, September 28, 1973.
- . "The Flora North America Information System." Symposium on use of EDP in the herbarium, sponsored by the NATO Eco-Sciences Panel and organized by the Royal Botanical Gardens, Kew, England, October 4, 1973.
- . "The Pageant of Spring Wildflowers in the Potomac Valley." Lecture series jointly sponsored by the Audubon Naturalist Society of the Central Atlantic States and the Smithsonian Associates, National Museum of Natural History, Washington, D.C., February 18, 1974.
- . "The Pageant of Spring Wildflowers in the Potomac Valley." Sponsored jointly by the Audubon Naturalist Society and the Reston Homeowner's Association at Reston, Virginia, March 4, 1974.
- . "Plant Exploration in Alaska." Photographers in Industry of Greater Pittsburgh, Pittsburgh, Pennsylvania, March 20, 1974.
- . "Plant Exploration in Alaska," Philadelphia Botanical Club, Academy of Natural Sciences of Philadelphia, Pennsylvania. March 28, 1974.
- . Guest lecturer in course, "Introduction to Landscape Architecture." Continuing Education for Women Center, George Washington University, Washington, D.C.:
- . "The Landscape in the Ecosystem." January 24, 1974.
- . "The Ecological Values of Natural Green Space." January 31, 1974.
- . Field trip to Suitland Bog, Suitland, Maryland, to demonstrate by example some of the ecological values of natural green space. February 16, 1974.
- Simpson, Beryl B. "Pleistocene Changes in the Montane Flora of South America." International Congress of Evolutionary and Systematic Biology in Boulder, Colorado, July 1973.
- . "The Late Tertiary and Cenozoic History of South America." International Conference on South American Biogeography, Harvard University, November 1973.
- Skog, Lawrence E. "Birds, Bats, and Gesneriads." Graduate seminar course at George Mason University, February 27, 1974, and again on May 29, 1974, at Northern Virginia Community College.
- . "Angiosperm Evolution in Response to Animal Pollinators." Plant morphology course at George Mason University, Fairfax, Virginia, May 6, 1974.
- . "The genus *Gesneria* in the West Indies." National Convention of the American Gloxinia and Gesneriad Society at Hampstead, New York, June 29, 1974.
- Soderstrom, Thomas R. "Primitive Forest Grasses and Evolution of the Bambusoideae." First International Congress of Systematic and Evolutionary Biology, Boulder, Colorado, August 1973.

- . "Flowering Phenomena in Bamboos." University of Puerto Rico, Mayaguez, March 1974.
- Wurdack, John J. "Phytogeography of Tropical South America" and "Melastomataceae." Tropical Botany Course, Fairchild Tropical Garden, Florida, July 7, 1973, conducted jointly by Florida Atlantic University and Florida International University.
- . "Plants of the Venezuelan Andes." Botanical Society of Washington, February 5, 1974.

### Department of Entomology

- Baumann, Richard W. "Studies on Utah Stoneflies (Plecoptera)." *Great Basin Naturalist*, volume 33 (1973), pages 91-108.
- . "New *Megaleuctra* from the Eastern United States (Plecoptera: Leuctridae)." *Entomological News*, volume 84 (1974), pages 247-250.
- Clarke, J. F. Gates. "Recent Smithsonian Accessions." *Journal of the Lepidopterists' Society*, volume 27, number 3 (1973), pages 240-241.
- . "The Genus *Eumarozia* Heinrich (Olethreutidae)." *Journal of the Lepidopterists' Society*, volume 27, number 4 (1973), pages 268-274.
- Duckworth, W. Donald, and Thomas D. Eichlin. "New Species of Clearwing Moths (Lepidoptera: Sesiidae) from North America." *Proceedings of the Entomological Society of Washington*, volume 75 (1973), pages 150-159.
- Erwin, Terry L. "Phylogenetic, Zoogeographic, and Bio-systematic Studies of Certain Carabid Ground Beetles. Grant No. 5795—Penrose Fund (1970), \$1,000." *American Philosophical Society Year Book 1972* (1973), pages 362-363.
- . "Studies of the Subtribe Tachyina (Coleoptera: Carabidae: Bembidiini), Part I: A Revision of the Neotropical Genus *Xystosomus* Schaum." *Smithsonian Contributions to Zoology*, number 140 (1973), 39 pages.
- . "Carabid Beetles, Mountain Tops, and Trees." *Proceedings of the Entomological Society of Washington*, volume 75, number 1 (1973), page 127.
- . "A Supplement to the Bombardier Beetles of North and Middle America: New Records for Middle America (Coleoptera: Carabidae)." *Coleopterists' Bulletin*, volume 27, number 2 (1973), pages 79-82.
- Field, William D. [Three Book Reviews] "African Butterflies." *Bulletin of the Entomological Society of America*, volume 19 (1973), pages 223-224.
- . [Four Book Reviews] *Butterflies of the Australian Region* by Bernard D'Abrera; *Australian Butterflies* by Charles McCubbin; *Butterflies of Australia* by Ian F. B. Common and Douglas F. Waterhouse; *Jamaica and Its Butterflies* by F. Martin Brown and Bernard Heineman. *Proceedings of the Entomological Society of Washington*, volume 75 (1974), pages 486-488.
- Field, William D., Cyril F. Dos Passos, and John H. Masters. "A Bibliography of the Catalogs, Lists, Faunal and Other Papers on the Butterflies of North America North of Mexico Arranged by State and Province (Lepidoptera: Rhopalocera)." *Smithsonian Contributions to Zoology*, number 157 (1974), 104 pages.
- Flint, Oliver S., Jr. "Studies of Neotropical Caddisflies, XVI: The Genus *Austrotinodes* (Trichoptera: Psychomyiidae)." *Proceedings of the Biological Society of Washington*, volume 86 (1973), pages 127-142.
- . "A Replacement Name for *Smicridea* (R.) *minima* Flint (Trichoptera: Hydropsychidae)." *Proceedings of the Entomological Society of Washington*, volume 75 (1973), page 219.
- . "The Megaloptera of Chile (Neuroptera)." *Revista Chilena de Entomologia*, volume 7 (1973), pages 31-45.



- . "The First Molannid Caddisfly from Ceylon, *Molanna taprobane*, New Species (Trichoptera: Molannidae)." *Proceedings of the Biological Society of Washington*, volume 86 (1973), pages 517-524.
- . "Studies of Neotropical Caddisflies, XVIII: New Species of Rhyacophilidae and Glossosomatidae." *Smithsonian Contributions to Zoology*, number 169 (1974), 30 pages.
- Harrison, B. A. "Anopheles (An.) reidi, a New Species of the Barbirostris Species Complex from Sri Lanka (Diptera: Culicidae)." *Proceedings of the Entomological Society of Washington*, volume 75 (1973), pages 365-371.
- . "Notes on Some Mosquito Types Deposited in France." *Mosquito Systematics*, volume 5 (1973), pages 277-279.
- Harrison, B. A., and R. Rattanarithikul. "Comparative Morphology of the Early Larval Instars of *Aedes aegypti* and *A. seatoi* in Thailand." *Mosquito Systematics*, volume 5 (1973), pages 280-294.
- Harrison, B. A., J. F. Reinert, E. S. Saugstad, R. Richardson, and J. E. Farlow. "Confirmation of *Aedes taeniorhynchus* in Oklahoma." *Mosquito Systematics*, volume 5 (1973) pages, 157-158.
- Harrison, B. A., and J. E. Scanlon. "Anopheles (An.) pilinotum, a New Species Name in the aitkenii Complex for *An. insulaeflorum* from the Philippines and Eastern Indonesia (Diptera: Culicidae)." *Mosquito Systematics*, volume 6 (1974), pages 32-40.
- Harrison, B. A., J. E. Scanlon, and J. A. Reid. "A New Synonym and New Species Name in the Southeast Asia *Anopheles hyrcanus* Complex." *Mosquito Systematics*, volume 5 (1973), pages 263-268.
- Hochman, Robert H., and John F. Reinert. "Undescribed Setae in Larvae of Culicidae (Diptera)." *Mosquito Systematics*, volume 6 (1974), pages 1-10.
- Huang, Y.-M. "A New Species of *Aedes* (*Stegomyia*) from Thailand and Notes on the *mediopunctatus* Subgroup (Diptera: Culicidae)." *Proceedings of the Entomological Society of Washington*, volume 75 (1973), pages 224-232.
- . "A Redescription of *Aedes* (*Stegomyia*) *amaltheus* (de Meillon and Lavoipierre) with a Note on Its Assignment to the *aegypti* Group of Species (Diptera: Culicidae)." *Mosquito Systematics*, volume 6, pages 27-31.
- Hurd, Paul D., Jr., A. E. Michelbacher, and E. Gorton Linsley. "Ecology of the Squash and Gourd Bee, *Peponapis pruinosa*, on Cultivated Cucurbits in California (Hymenoptera: Apoidea)." *Smithsonian Contributions to Zoology*, number 168 (1974), 17 pages.
- Krombein, Karl V. "Notes on North American *Stigmus* Panzer (Hymenoptera, Sphecoidea)." *Proceedings of the Biological Society of Washington*, volume 86 (1973), pages 211-230, 16 figures.
- . "A New *Campsomeriella* from New Ireland (Hymenoptera: Scoliidae)." *Proceedings of the Entomological Society of Washington*, volume 75 (1973), page 373.
- . "Systematics and Distributional Notes on Melanesian *Cerceris* (Hymenoptera: Sphecidae)." *Proceedings of the Entomological Society of Washington*, volume 75 (1974 [1973]), pages 464-467, 1 figure.
- . [Book review] "Hymenopterorum Catalogus. Pars 8, Palaearctic Eumenidae, by J. van der Vecht and F. C. J. Fischer." 1972. *Bulletin of the Entomological Society of America*, volume 19 (1973), page 125.
- . [Book review] "The African Compsomerinae (Hymenoptera, Scoliidae), by J. G. Betrem, 1972 (1971)." *Proceedings of the Entomological Society of Washington*, volume 75 (1973), page 250.
- . [Book review] "Wasps: An Account of the Biology and Natural History of Solitary and Social Wasps, by J. P. Spradbery, 1973." *American Scientist*, volume 62, number 3 (1974), page 350.



- Krombein, Karl V., James F. Mello, and James J. Crockett. "The North American Hymenoptera Catalog: A Pioneering Effort in Computerized Publication." *Bulletin of the Entomological Society of America*, volume 20 (1974), pages 24-29, 3 figures.
- Peyton, E. L. "The Identity of *Aedes* Species Unknown of Knight and Hull, 1953." *Mosquito Systematics*, volume 5 (1973), pages 161-162.
- . "Notes on the Genus *Uranotaenia*." *Mosquito Systematics*, volume 5 (1973), pages 194-196.
- Rattanakul, F., and B. A. Harrison. "An Illustrated Key to the *Anopheles* Larvae of Thailand." 42 pages. Bangkok: Jintana Printing Ltd.
- Reinert, J. F. "*Aedes consonensis*, a New Species of the Subgenus *Neomacleaya* from South Vietnam (Diptera: Culicidae)." *Mosquito Systematics*, volume 5 (1973), pages 252-262.
- . "Contributions to the Mosquito Fauna of Southeast Asia. XVIII. A Reconsideration of *Diceromyia* Theobald with the Inclusion of *Aedes nummatus* Edwards and *Aedes pseudonummatus*, New Species (Diptera: Culicidae)." *Contributions of the American Entomological Institute*, volume 10 (1973), pages 22-40.
- . "Contributions to the Mosquito Fauna of Southeast Asia. XIX. *Bothella*, a New Subgenus of *Aedes* Meigen." *Contributions of the American Entomological Institute*, volume 10 (1973), pages 1-51.
- . "Terminology and Preparation Techniques of the Female Genitalia of Aedine Mosquitoes (Diptera: Culicidae)." *Mosquito Systematics*, volume 6 (1974), pages 46-56.
- Sirivanakarn, S. "The Forms of *Culex* (*Culex*) *bitaeniorhynchus* Giles in Southeast Asia." *Mosquito Systematics*, volume 5 (1973), pages 235-251.
- Sirivanakarn, S., and T. Kurihara. "A New Species of *Culex*, Subgenus *Culicomyia* Theobald from Ceram, Indonesia (Diptera: Culicidae)." *Proceedings of the Entomological Society of Washington*, volume 75 (1973), pages 200-224.
- Spangler, Paul J. "Aquatic Coleoptera Collected by the Biospeleological Expeditions to Cuba by the Academies of Science of Cuba and Romania." Pages 353-358 in Orghidian et al., *Resultats des Expeditions Biospeologiques Cuban-Roumaines a Cuba 1*. Bucarest, Romania: Editura Academiei Republicii Socialiste Romania, 1973.
- . "The Bionomics, Distribution, and Immature Stages of the Rare Predacious Water Beetle, *Hoperius planatus* (Coleoptera: Dytiscidae)." *Proceedings of the Biological Society of Washington*, volume 86, number 36 (1973), pages 423-434.
- . "The Nomenclature, Bionomics, and Distribution of *Notaticus fasciatus* (Coleoptera: Dytiscidae: Aubehydrinae)." *Proceedings of the Biological Society of Washington*, volume 86, number 42 (1973), pages 495-500.
- . "A Description of the Larva of *Celina angustata* Aube (Coleoptera: Dytiscidae)." *Journal of the Washington Academy of Sciences*, volume 63, number 4 (1974), pages 165-168.
- . "The Rediscovery of *Cylorygmus lineatopunctatus* (Coleoptera: Hydrophilidae: Sphaeridiinae: Rygmodini)." *Journal of the Kansas Entomological Society*, volume 47, number 2 (1974), pages 244-248.
- Spangler, Paul J., and George W. Folkerts. "The Larva of *Pachydrus princeps* (Coleoptera: Dytiscidae)." *Proceedings of the Biological Society of Washington*, volume 86, number 29 (1973), pages 351-356.
- . "Reassignment of *Colpius inflatus* and a Description of its Larva (Coleoptera: Noteridae)." *Proceedings of the Biological Society of Washington*, volume 86, number 29 (1973), pages 501-510.

- Spangler, Paul J., and Robert D. Gordon. "Descriptions of the Larvae of some Predacious Water Beetles (Coleoptera: Dytiscidae)." *Proceedings of the Biological Society of Washington*, volume 86, number 22 (1973), pages 261-278.
- Stewart, Kenneth W., Richard W. Baumann, and Bill P. Stark. "The Distribution and Past Dispersal of Southwestern United States Plecoptera." *Transactions of the American Entomological Society*, volume 99 (1974), pages 507-546.

#### LECTURES AND SEMINARS

- Baumann, Richard W. "The Status of Neotropical Plecoptera." Lecture at Symposium, "Neotropical Aquatic Insects." Entomological Society of America, Annual Meeting, November 28, 1973.
- Clarke, J. F. Gates. "Pacific Island Expeditions." Invitational lecture, second annual Robert A. Hefner Lecture in Zoology, Miami University, Oxford, Ohio, February 1974.
- Duckworth, W. Donald. "Habitat Considerations in the Study of Tropical Rain Forest Lepidoptera." Invitational lecture at symposium, "An Introduction to the Neotropics." Lepidopterists' Society, Annual Meeting, June 23, 1973.
- Hurd, Paul D., Jr. "Status and Role of Systematics Collections in Entomological Research: National Collections." Invited Speaker. Entomological Society of America, Eastern Branch Meeting, November 1, 1973.
- . "Systematics Collections and Collection Management." Conference Speaker. Entomological Society of America, Annual Meeting, November 26, 1973.
- Krombein, Karl V. "Computerization and Publication of Hymenoptera of America North of Mexico — Synoptic Catalog." Contributed Paper. 1st International Congress of Systematic and Evolutionary Biology, August 6, 1973.
- . "Computerization of Catalog of North American Hymenoptera." Contributed Paper. Annual Meeting, Entomological Society of America, November 28, 1973.
- . "Biosystematic Studies of the Insects of Ceylon." Leader, invitational symposium. Entomological Society of Washington, December 6, 1973.
- . "Military Entomology Support at the Smithsonian Institution." Invitational Address. Tri-Service Military Entomology Training Conference, Academy of Health Sciences, Fort Sam Houston, Texas, February 5, 1974.
- Spangler, Paul J. "Adaptations of Insects to an Aquatic Environment." Invitational Lecture, Monthly Meeting of the Maryland Entomological Society, Baltimore, Maryland, January 18, 1974.

#### Department of Invertebrate Zoology

- Barnard, J. L. "Revision of Corophiidae and Related Families (Amphipoda)." *Smithsonian Contributions to Zoology*, number 151 (1973), 27 pages.
- . "Gammaridean Amphipoda from Australia, Part II." *Smithsonian Contributions to Zoology*, number 139 (1974), 148 pages.
- Bowman, T. E. "Two New American Species of *Spelaeomysis* (Crustacea: Mysidacea) from a Mexican Cave and Land Crab Burrows." *Association for Mexican Cave Studies*, bulletin 5 (1973), pages 13-20.
- . "The 'Sea-flea' *Dolobrotus mardeni* n. gen, n. sp., a Deep-Water Lobster Bait Scavenger (Amphipoda: Eusiridae)." *Proceedings of the Biological Society of Washington*, volume 87, number 14 (1974), pages 129-138.
- Bowman, T. E., and H.-E. Gruner. "The Families and Genera of Hyperiidea." *Smithsonian Contributions to Zoology*, number 146 (1973), 64 pages.



- Bowman, T. E., with J. R. Holsinger. "A New Troglobitic Isopod of the Genus *Lirceus* (Asellidae) from Southwestern Virginia, with Notes on its Ecology and Additional Cave Records for the Genus in the Appalachians." *International Journal of Speleology*, number 5 (1974), pages 261-271.
- Bowman, T. E., with M. W. Johnson. "Distributional Atlas of Calanoid Copepods in the California Current Region, 1949 and 1950." *California Cooperative Oceanic Fisheries Investigations*, Atlas number 19 (1973), pages 1-239.
- Cressey, R., and H. Boyle. "Five New Bomolochid Copepods Parasitic on Indo-Pacific Clupeid Fishes." *Smithsonian Contributions to Zoology*, number 161 (1974), 25 pages.
- Cressey, R., and C. Patterson. "Fossil Parasitic Copepods from a Lower Cretaceous Fish." *Science*, volume 180 (1973), pages 1283-1285.
- Hobbs, H. H., Jr. "Three New Troglobitic Decapod Crustaceans from Oaxaca, Mexico." *Association for Mexican Cave Studies*, bulletin 5 (1973), pages 25-38, 8 figures.
- . "Two New Troglobitic Shrimps (Decapoda: Alpheidae and Palaemonidae)." *Association for Mexican Cave Studies*, bulletin 5 (1973), pages 73-80, 3 figures.
- . "New Species and Relationships of the Members of the Genus *Falli-cambarus*." *Proceedings of the Biological Society of Washington*, volume 86, number 40 (1973), pages 461-481, 4 figures.
- . "Synopsis of the Families and Genera of Crayfishes (Crustacea: Decapoda)." *Smithsonian Contributions to Zoology*, number 164 (1974), iii + 32 pages, 27 figures.
- Hobbs, H. H., Jr., with H. H. Hobbs III. "The Genus *Sphaeromicola* (Ostracoda, Entocytheridae) in Mexico." *Association for Mexican Cave Studies*, bulletin 5 (1973), pages 39-42, 1 figure.
- Hope, W. D. "*Schistodera* Cobb, 1920 (Nematoda: Enoplida), a Request for Suppression; *Oxystomina* Filipjev, 1921, Proposed for the Official List. *Bulletin of Zoological Nomenclature*, volume 30, number 2 (1973), pages 102-103.
- . "Nematoda." Pages 391-469 in *Reproduction of Marine Invertebrates*, edited by Arthur C. Giese and John S. Pearse, volume 1. New York: Academic Press, 1974.
- Jones, M. L., and C. E. Dawson. "Salinity-Temperature Profiles in the Panama Canal Locks." *Marine Biology*, volume 21 (1973), pages 86-90, figures 1-4.
- Kirsteuer, E., and K. Ruetzler. "Additional Notes on *Tubiluchus corallicola* (Priapulida) Based on Scanning Electron Microscope Observations." *Marine Biology*, volume 20 (1973), pages 78-87, 6 figures.
- Kornicker, Louis S., and H. V. Howe. "First Report of the Suborder Myodocopina (Ostracoda) from the Tertiary (Eocene, North Carolina) of North America." *Journal of Paleontology*, September 1973, pages 997-998, 1 figure.
- Perez Farfante, Isabel C., and Harvey R. Bullis, Jr. "Western Atlantic Shrimps of the Genus *Solenocera*, with Description of a New Species (Crustacea: Decapoda: Penaeidae)." *Smithsonian Contributions to Zoology*, number 153 (1973), 33 pages.
- Rehder, Harald A. "Comment on the Proposals Concerning Family Names Cassidae and Harpidae. Z.N.(S) 1938." *Bulletin of Zoological Nomenclature*, volume 30 (1973), page 1.
- . "*Nipponaphera* Habe, 1961 (Gastropoda): Proposed Designation of a Type-Species under the Plenary Powers. Z.N.(S.) 2007." *Bulletin of Zoological Nomenclature*, volume 30 (1973), pages 37-38.
- . "Paul Bartsch, 1871-1960." Pages 1-9 in Florence A. Ruhoff, "Bibliography and Zoological Taxa of Paul Bartsch." *Smithsonian Contributions to Zoology*, number 143 (1973).



- . Comments on the Type-Species of *Lucina* (Mollusca: Pelecypoda). Z.N. (S.) 2001. *Bulletin of Zoological Nomenclature*, volume 30 (1973), pages 71-73.
- . "The Family Harpidae of the World." *Indo-Pacific Mollusca*, volume 3 (1973), pages 207-274, figures 183-247.
- . "On the Genus *Volutocorbis* with Descriptions of Two New Species from South Africa." *The Nautilus*, volume 88 (1974), pages 33-37, figures 1-8.
- . "Comment on the Request for the Designation of a Type-Species of *Tutufa* Jousseaume, 1881." Z.N.(S.) 2021. *Bulletin of Zoological Nomenclature*, volume 30 (1974), 2 pages.
- Rehder, Harald A., and Clifton S. Weaver. "A New Species of *Volutocorbis* from South Africa." *The Nautilus*, volume 88 (1974), pages 31-32, figures 1-8.
- Rice, M. E. "Morphology, Behavior, and Histogenesis of the Pelagosphaera Larva of *Phascolosoma agassizii* (Sipuncula)." *Smithsonian Contributions to Zoology*, number 132 (1973), 51 pages.
- Roper, C. F. E. "Vertical and Seasonal Distribution of Pelagic Cephalopods in the Mediterranean Sea: Preliminary Report." *Bulletin of the American Malacological Union* for 1973 (1974), pages 27-30.
- Rosewater, Joseph. "A Source of Authors and Dates for Family Names of Gastropods." *The Veliger*, volume 16, number 2 (October 1973), page 243.
- . "More on Penis Shedding Among *Littorina*." *New York Shell Club Notes*, number 196 (November 1973), page 7.
- . "Studies on Ascension Island Marine Mollusks." *Bulletin of the American Malacological Union* for 1973, pages 30-32.
- . "Phylogeny of Littorinidae." *The Littorinid Tidings. Occasional Newsletter of the Littorinidae Research Group*, issue number 1 (1974), pages 10-11.
- Ruetzler, K. "Principles of Sponge Distribution in Indo-Pacific Coral Reefs." *Proceedings of the Symposium on Corals and Coral Reefs, 1969, Marine Biological Association of India*, pages 315-332, 6 figures, 5 tables, 1972.
- . "The Burrowing Sponges of Bermuda." *Smithsonian Contributions to Zoology*, number 165 (1974), 32 pages, 26 figures, 1 table.
- Ruetzler, K., and G. Rieger. "Sponge Burrowing: Fine Structure of *Cliona lampa* Penetrating Calcareous Substrata." *Marine Biology*, volume 21 (1973), pages 144-162, 11 figures, 2 tables.
- Stansbery, D. H. "A Preliminary Report on the Naiad Fauna of the Clinch River in the Southern Appalachian Mountains of Virginia and Tennessee (Mollusca: Bivalvia: Unionidae)." *Bulletin of the American Malacological Union* for 1972 (1973), pages 20-22.
- . "Why Preserve Rivers?" *Explorer*, volume 15, number 13 (1973), pages 14-16.
- . "Dams and the Extinction of Aquatic Life." *Bulletin of the Garden Club of America*, volume 61, number 1, (1973), pages 43-46.
- . "Identification of Subfossil Shell from Salts Cave." Chapter 18 in P. J. Watson, editor, *Archaeology of Salts Cave, Kentucky*. 1974.
- . "The Pleuroceridae and Unionidae of North Fork Holston River above Saltville, Virginia." *Bulletin of the American Malacological Union* for 1973 (1974), pages 33-36.
- Williams, A. B. "*Allactaea lithostrota*, a New Genus and Species of Crab (Decapoda: Xanthidae) from North Carolina, U.S.A." *Proceedings of the Biological Society of Washington*, volume 87, number 3 (1974), pages 19-26.

#### LECTURES AND SEMINARS

- Chace, Fenner A. (with Drs. Rosewater and Pawson): Invertebrate Zoology Seminar on Ascension Island.

- Hobbs, Horton H. "The Crayfish." Seminar for Science teachers in Fairfax Public School System, March 1974.
- . "Adaptations and Convergence in American Crayfishes." International Symposium on Crayfishes, Baton Rouge, Louisiana, April 8, 1974.
- Hope, W. Duane. "Gutless wonders of the deep." First International Congress of Systematic and Evolutionary Biology, Boulder, Colorado, August 6, 1973.
- Jones, Meredith L. "Gatun Lake as a Freshwater Barrier in the Panama Canal." American Malacological Union meetings, Newark, Delaware, June 26, 1973.
- . Marine Biology Class, University of Panama, November 1973, Informal discussion of ecological parameters (with slides).
- . "On the Systematics of the Magelonidae." Southern California Academy of Sciences meetings, Fullerton, California, May 4, 1974.
- Pawson, David L. "Antarctic Biology." James Madison High School, November 1973.
- Pettibone, Marian H. "Revisionary Studies on the Aphroditoid Polychaetes." Southern California Academy of Sciences meetings, May 4, 1974.
- Roper, Clyde F. E. "Oceanographic expeditions." Public lecture, Fredericksburg, Virginia.
- . "Phylogeny and Diversity in Recent Cephalopoda." International Colloquium on Molluscan Phylogeny, London, April 1974.
- . "Diversity and Biology of Cephalopods." Western Society of Malacologists Banquet Address, Pomona, California, June 1974.
- . "Vertical Distribution of Mediterranean Cephalopods." American Malacological Union Annual Meeting, University of Delaware, June 1974.
- Roper, Clyde F. E., and Rosewater, Joseph. Two lectures, one demonstration (tour of Mollusk collections), one field trip to Chincoteague, Virginia, during course on Marine Malacology to a class of approximately 20 adults, July 5–August 1, 1973, sponsored by Smithsonian Associates.
- Rosewater, Joseph. Two lectures on Ecology of Marine Mollusks to class in Biology of Mollusks, Harvard University, Cambridge, Massachusetts, December 4–6, 1973.
- . "A Malacological Expedition to Molluccas Islands." Evening lecture, Boston Malacological Club, Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, February 5, 1974.
- . "Mollusks of Ascension Island, South Atlantic Ocean." Invertebrate Zoology Seminar, National Museum of Natural History, March 27, 1974.
- . "A Malacological Expedition to Molluccas Islands." Smithsonian Associates, National Museum of Natural History, April 4, 1974.
- . "Phylogeny of Littorinidae." Colloquium on Molluscan Phylogeny, Bedford College, London, England, April 3–4, 1974.
- . "A Malacological Expedition to the Molluccas Islands." Pittsburgh Shell Club, Pittsburgh, Pennsylvania, June 1, 1974.
- Stansbery, David H. "North American Unionid Mollusks: Vanishing Americans." Paleontological Society of Washington (December 1973), National Capital Shell Club (January 1974), Invertebrate Zoology Seminar (March 1974).
- . "Symposium on Organisms and Biological Communities as Indicators of Environmental Quality." Participant, Ohio State University, March 1974. At same symposium, he also presented a paper entitled "Unionid Mollusks as Environmental Indicators."

#### *Department of Mineral Sciences*

- Appleman, D. E., with R. T. Helz. "Poikilitic and Cumulate Textures in Rock 77017, a Crushed Anorthositic Gabbro." In *Lunar Science V*, Lunar Science Institute, pages 322–324, 1974.



- Clarke, Roy S., Jr. (editor). "The Meteoritical Bulletin, no. 52." *Meteoritics*, volume 9 (1974), pages 101-121.
- Clarke, Roy S., Jr., and Joseph I. Goldstein. "Phosphide Growth in Coarse Structured Iron Meteorites" (abstract). *Meteoritics*, volume 8 (1973), pages 335-336.
- Desautels, P. E. "Collectors Series: Rocks and Minerals." 200 pages. Grosset and Dunlap.
- . "The National Collection of Gems in the Smithsonian Institution, 1965 to 1974." *Lapidary Journal*, pages 84-100, 1974.
- . "Majestic Jewels Find a New Setting at Smithsonian." *Smithsonian* (June 1974), pages 36-43.
- . "Gems in the Smithsonian" Smithsonian Institution Press, 63 pages, 44 color plates, 5 black and white, 1972. [Not previously reported in staff list.]
- Fredriksson, K., P. Brenner, J. Nelen, A. Noonan, A. Dube, and A. Reid. "Comparative Studies of Impact Glasses and Breccias." *Lunar Science V*, pages 245-247, 1974.
- Fredriksson, K., A. Dube, D. Milton, and M. S. Balasundaram. "Lunar Lake, India: An Impact Crater in Basalt." *Science*, volume 180 (1973), pages 862-864, 1973.
- Fredriksson, K., A. Noonan, and J. Nelen. "Meteoritic, Lunar, and Lunar Impact Chondrules." *The Moon*, volume 7 (1973), pages 574-582.
- Fredriksson, K., with A. M. Reid, R. J. Williams, and E. K. Gibson, Jr. "A Refractory Glass Chondrule in the Vigarano Chondrite." *Meteoritics*, volume 9 (1974), pages 35-45.
- Fudali, R. F. "Genesis of the Melt Rocks at Tenoumer Crater, Mauritania." *Journal of Geophysical Research*, volume 74, number 14 (1974), pages 2115-2121.
- . "Origin of the Analcime-bearing Rocks at Richat, Sciences de la Terre, Memoire 28." *Contributions a l'Etude de l'Accident Circulaire des Richat*, pages 97-106, 1973.
- . "Roter Kamm: evidence for an impact origin." *Meteoritics*, volume 8, number 3 (1973), pages 245-257.
- Fudali, R. F., and W. A. Cassidy. "Gravity Reconnaissance at Richat, Sciences de la Terre, Memoire 28." *Contributions a l'Etude de l'Accident Circulaire des Richat*, pages 77-81, 1973.
- Fudali, R. F., D. P. Gold, and J. J. Gurney. "The Pretoria Salt Pan: Astrobleme or Cryptovolcano?" *Journal of Geology*, volume 81, number 4 (1973), pages 495-507.
- Jarosewich, E., with R. H. Gibbs, Jr., and H. L. Windor. "Heavy Metal Concentration in Museum Fish Specimens: Effect on Preservatives and Time." *Sciences*, volume 160 (1973), pages 475-477.
- Jarosewich, E., with B. Mason. "The Barea, Dyarri Island, and Emery Meteorites and Review of the Mesosiderites." *Mineralogical Magazine*, volume 39 (1973), pages 204-217.
- Mason, B. "Chemistry of the Moon's Surface." *Chemistry in Britain*, volume 9 (1973), pages 456-461.
- . "Manganese Silicate Minerals from Broken Hill, New South Wales." *Journal of the Geological Society of Australia*, volume 20, pages 397-404, 1973.
- Mason, B., with R. O. Allen. "Minor and Trace Elements in some Meteoritic Minerals." *Geochimica et Cosmochimica Acta*, volume 37 (1973), pages 1435-1456.



- Mason, B., and R. O. Allen. "Minor and Trace Elements in Augite, Hornblende, and Pyrope Megacrysts from Kakanui, New Zealand." *New Zealand Journal of Geology and Geophysics*, volume 16 (1973), pages 935-947.
- Mason, B., with G. T. Faust, J. J. Fahey, and E. J. Dwornik. "The Disintegration of the Wolf Creek Meteorite and the Formation of Pecoraite, the Nickel Analog of Clinochrysotile." *United States Geological Survey Professional Paper*, number 384 (1973), pages 107-135.
- Mason, B., S. Jacobson, J. A. Nelen, W. G. Melson, and T. Simkin. "Regolith Compositions from the Apollo 17 Mission." *Lunar Science V*, pages 493-495, 1974.
- Mason, B., with J. C. Laul, and R. A. Schmitt. "Breccias 64435, 63335, and 63355." *Lunar Science V*, pages 435-437, 1974.
- Mason, B., and P. M. Martin. "Minor and Trace Element Distribution in Melilite and Pyroxene from the Allende Meteorite." *Earth and Planetary Science Letters*, volume 22 (1974), pages 141-144.
- Moreland, G., with G. H. Conrad, P. F. Hlava, J. A. Green, R. B. Moore, E. Dowty, M. Prinz, K. Keil, C. E. Nehru, and T. E. Bunch. "Electron Microprobe Analyses of Lithic Fragments and Their Minerals from Luna 20 Fines. Special Publication 12, UNM Institute of Meteoritics, 1973.
- Moreland, G., with E. Dowty, M. Prinz, C. E. Nehru, R. B. Moore, K. Keil, P. F. Hlava, and J. A. Green. "Electron Microprobe Analyses of Minerals from Apollo 15 Mare Basalt Rake Samples. Special Publication 9, UNM Institute of Meteoritics, 1973.
- Simkin, T., with J. E. Case, S. L. Ryland, and K. A. Howard. "Gravitational Evidence for a Low-Density Mass Beneath the Galapagos Islands." *Science*, volume 181 (1973), pages 1040-1042.
- . "Gravity Anomalies in the Galapagos Islands Area." *Science*, volume 184 (1974), pages 808-809.
- Simkin, T., with J. Filson, and L-K. Leu. "Seismicity of a Caldera Collapse: Galapagos Islands 1968." *Journal of Geophysical Research*, volume 78, number 35 (1973), pages 8591-8622.
- Simkin, T., W. G. Reeder, and C. MacFarland. "Galapagos Science: 1972 Status and Needs." *Galapagos Science 1972 Conference*, pages i-ix + 1-87, 1972.
- Switzer, G. S. "Memorial to Martin L. Ehrmann, August 9, 1903-May 18, 1972." *American Mineralogist*, volume 59 (1974), pages 414-415.
- . "The Diamond Industry in 1972." *Jewelers Circular Keystone*, 1973.
- Switzer, G. S., with T. Simkin, A. F. Noonan, B. Mason, J. A. Nelen, and W. G. Melson. "Composition of Apollo 16 Fines 60051, 60052, 64811, 64812, 67711, 67712, 68821, and 68822." *Geochimica et Cosmochimica Acta*, Proceedings of the Fourth Lunar Science Conference, volume 4, number 1 (1974), pages 279-289.
- White, J. S., Jr. "Memorial of Kent Combs Brannock, July 20, 1923-February 21, 1973." *American Mineralogist*, volume 59 (1974), pages 411-413.
- . "Extreme Symmetrical Distortion of Pyrite from Naica, Mexico." *Mineralogical Record*, volume 4 (1974), pages 267-270.
- White, J. S., Jr., P. B. Leavens, J. E. Arem, J. A. Nelen, and R. W. Thomssen. "Brannockite, a New Tin Silicate." *Mineralogical Record*, volume 4 (1973), pages 73-76.
- White, J. S., Jr., and J. A. Nelen. "Tetrawickmanite, Tetragonal  $\text{MnSn}(\text{OH})_6$ , a New Mineral from North Carolina, and the Stottite Group." *Mineralogical Record*, volume 4 (1973), pages 24-30.

#### LECTURES AND SEMINARS

- Appleman, Daniel E. "Current Geological Research." National Conference of

Explorer Scout Presidents.

- . "Careers in Geology." Oakton High School.
- . "New Minerals from the Moon." Mineralogical Society of the District of Columbia.
- Desautels, Paul E. American Federation of Mineral Societies, Convention and Show, Charlotte, North Carolina, July 1973.
- . Midwest Federation of Mineral Societies, Convention and Show, Cincinnati, Ohio, July 1973.
- . Southern Appalachian Gem and Mineral Society, Meeting and Show, Spruce Pine, North Carolina, August 1973.
- . Baltimore Mineral Society, Annual Micromounting Symposium, Baltimore, Maryland, September 1973.
- . Congressional Wives Club, National Museum of Natural History, October 1973.
- . Philadelphia Mineral Society, Philadelphia, Pennsylvania, October 1973.
- . Mineral Society of Southern California Meeting and Show, Pasadena, California, October 1973.
- . Nassau Mineral Club, Long Island, New York, November 1973.
- . Delaware Valley Mineral Society, Woodbury, New Jersey, November 1973.
- . Opening of new Edelsteinbourse Museum, Idar-Oberstein, West Germany, November 1973.
- . Question and answer session by telephone hookup to Waco Gem and Mineral Society, Waco, Texas, December 1973.
- . Pacific Micromount Conference, Santa Monica, California, February 1974.
- . "Unveiling of New Mineral Postage Stamps." Tucson, Arizona, February 1974.
- . Tucson Gem and Mineral Society, Annual Meeting, Tucson, Arizona, February 1974.
- . American Machine Tool Manufacturer's Association, Annual Meeting, Puerto Rico, March 1974.
- . First Annual Mineral Conference, Rochester Academy of Sciences, Canandaigua, New York, April 1974.
- . Smithsonian Associates, National Collection of Fine Arts, May 1974.
- . School Librarian's Association of Northern Virginia, Fort Meyer, Virginia, May 1974.
- . Ward's Natural Science Establishment, Rochester, New York, May 1974.
- . Baltimore Mineral Society Annual Banquet, Sparrow's Point, Maryland, June 1974.
- . California Federation of Mineral Societies, Convention and Show, San Mateo, California, June 1974.
- Dunn, Pete J. Northshore Rock and Mineral Club of Massachusetts, January 1974.
- . Greater Boston Mineral Show, April 1974.
- . Baltimore Mineral Society, October 1973.
- . New England Gem and Mineral Show, June 1973.
- Fredriksson, Kurt. "The Lonar Impact Crater." The Commission for the Geological Map of the World, Calcutta, February 1974.
- . "Carbonaceous Matrix in Ordinary Chondrites." Meeting of the Group for the Analysis of Carbon Compounds in Carbonaceous Chondrites and Lunar Sample, Stanford University, October 1973.
- Jarosewich, Eugene, with R. T. Dodd. "H and L Group Xenoliths in the St. Mesmin LL Group Chondrite." AGU Meeting, Washington, D.C., April 1974.



- . "Chemical Analysis of Carbon and Sulfur in Carbonaceous Meteorites." Stanford University, October 1973.
- Mason, Brian H. "Minor and Trace Elements in the Allende Meteorite." Paper, Geology Department, University of Melbourne, July 1973.
- . "Manganese Silicate Minerals from Broken Hill, Australia." Paper, Geological Society of Australia, Victoria Division, July 1973; Research School of Earth Sciences, Australian National University, July 1973.
- . "Lunar Geochemistry." Museu Nacional, Rio de Janeiro, October 1973.
- . Geology Club, State University of New York at Crockfort, February 1974.
- . "Regolith Compositions from the Apollo 16 Mission." Paper, Fifth Lunar Science Conference, Houston, Texas, March 1974.
- . "Kimberlite Geochemistry." International Conference on Kimberlites, Cape Town, September 1973.
- . "High-titanium Lunar Basalts: a Possible Source in the Allende Meteorite." Geological Society of Washington, May 1974.
- Simkin, Thomas E. "Recent Volcanism in the Galapagos." Swarthmore College, January 1974.
- . AAAS Annual Meeting, March 1974.
- . Pick and Hammer Club, U.S. Geological Survey, Menlo Park, March 1974.
- . Prince Georges County Gem and Mineral Club, April 1974.
- . "Tonga Pumice Eruption." Geological Society of Washington, October 1973.
- Switzer, George S. "Gemology." Smithsonian Associates, autumn 1973.
- White, John S. "Mineralogical Travelogue." National Show, American Federation of Mineral Societies, Charlotte, North Carolina, July 1973.
- . "Minerals of the Foote Spodumene Mine." Midwest Federation Show, Cincinnati, Ohio, July 1973.
- . "Minerals of the Foote Mineral Company's Spodumene Mine, Kings Mountain, North Carolina." The Philadelphia Mineralogical Society, Media, Pennsylvania, December 1973.
- . "Mineral Names." Mineral Show, St. Petersburg Gem and Mineral Club, Florida, March 1974.
- . "M and M, the Museum and the Magazine." Mineral Show, St. Petersburg Gem and Mineral Club, Florida, March 1974.
- . "The Minerals of the Foote Mineral Company's Spodumene Mine." Banquet, Walker Mineral Club, Toronto, May 1974.
- . "Changing Trends in Mineral Collecting." Mineral Show, Cincinnati, Ohio, May 1974.

### *Department of Paleobiology*

- Adey, W. "Temperature Control of Reproduction and Productivity in a Subarctic Coralline Alga." *Phycologia*, volume 12 (1973), pages 111-118.
- Adey, W., and P. J. Adey. "Studies on the Biosystematics and Ecology of the Epilithic Crustose Corallinaceae of the British Isles." *British Phycological Journal*, volume 8 (1973), pages 343-407.
- Benson, R. H. "Ostracodal View of the Messinian Salinity Crisis. Messinian Events in the Mediterranean." *Geodynamics Scientific Report Number 7*, pages 235-243. Amsterdam: North Holland Publishing Company, 1973.
- . "The Role of Ornamentation in the Design and Function of the Ostracode Carapace." In *Commemorative Volume to H. V. Howe*. Baton Rouge: Louisiana State University Press, 1974.



- Boardman, R. S., and A. H. Cheetham. "Degrees of Colony Dominance in Stenolaemate and Gymnolaemate Bryozoa." In Boardman and Cheetham, editors, *Animal Colonies: Development and Function Through Time*, pages 121-220, 13 plates, 27 figures. Dowden, Hutchinson and Ross Publishing Company, October 1973.
- Boardman, R. S., A. H. Cheetham, and W. A. Oliver, Jr. "Introducing Coloniality." Preface In Boardman and Cheetham, editors, *Animal Colonies: Development and Function Through Time*. Dowden, Hutchinson and Ross Publishing Company, October 1973.
- Buzas, M. A. "Vertical Distribution of *Ammobaculites* in the Rhode River, Maryland." *Journal of Foraminiferal Research*, 1974.
- Cifelli, R. "Observations on *Globigerina pachyderma* (Ehrenberg) and *G. incompta* Cifelli from the North Atlantic." *Journal of Foraminiferal Research*, volume 3 (1973), pages 157-166.
- Coates, A. G., and E. G. Kauffman. "Stratigraphy, Paleontology, and Paleoenvironment of a Cretaceous Coral Thicket, Lamy, New Mexico." *Journal of Paleontology*, volume 47, number 5 (1973), pages 953-968, 4 figures, plate 1.
- Cooper, G. A., and R. E. Grant. "Permian Brachiopods of West Texas, II." *Smithsonian Contributions to Paleobiology*, number 15 (1974), pages 233-793, plates 24-191.
- Emry, Robert J. "Stratigraphy and Preliminary Biostratigraphy of the Flagstaff Rim Area, Natrona County, Wyoming." *Smithsonian Contributions to Paleobiology*, number 18 (1973), 43 pages.
- . [Review] "The Age of Mammals," by Bjorn Kurten, Columbia University Press, New York (1972). *Journal of Mammalogy*, volume 54, pages 1024-1026.
- Emry, Robert J., and Mary R. Dawson. "Nonomys, New Name for the Cricetid (Rodentia, Mammalia) Genus *Nanomys* Emry and Dawson." *Journal of Paleontology*, volume 47 (1973), page 1003.
- Grant, R. E., and G. A. Cooper. "Brachiopods and Permian Correlations." In *The Permian and Triassic Systems and Their Mutual Boundary*, Memoir 2, pages 572-595, 7 figures. Calgary, Alberta: Canadian Society of Petroleum Geologists, 1973.
- Kauffman, E. G. "Cretaceous Bivalvia." Pages 353-383, 10 figures, in Hallam, editor, *Atlas of Paleobiogeography*. Amsterdam: Elsevier Publishing Company, 1973.
- . "A Brackish Water Biota from the Upper Cretaceous Harebell Formation of Northwestern Oklahoma." *Journal of Paleontology*, volume 47, number 3 (1973), pages 436-446, 2 figures, plate 1.
- . "Stratigraphic Evidence for Cretaceous Eustatic Changes." Abstract Program (1973), page 687, *Annual Meeting of Geological Society of America*, Dallas.
- . "Extinction Patterns in the Cretaceous." *Ibid*, page 687.
- . "Evolutionary Rates and Biostratigraphy." *Ibid*, page 688.
- . "The Value of Benthonic Bivalvia in Cretaceous Biostratigraphy of the Western Interior." Program and Abstracts (1973), *Colloquium on Cretaceous Systematics of Western Interior North America*, Geological Association of Canada, Saskatoon, Saskatchewan, page 40.
- . "Biostratigraphy." Pages 117-121, 1 figure, in McGraw-Hill Yearbook of Science and Technology, 1974.
- Kauffman, E. G., and N. F. Sohl. "Structure and Evolution of Antillean Cretaceous Rudist Frameworks." 97 pages, 24 figures, in *Festschrift für Hans Kugler*, Natural History Museum, Basel, 1974.

- Kennedy, W. J., E. G. Kauffman, and H. C. Klinger. "Upper Cretaceous Invertebrate Faunas from Durban, South Africa." *Transactions of the Geological Society of South Africa*, pages 97-111, 1 figure, plates 1-6, 1974.
- Kier, P. M. "A New Silurian Echinoid Genus from Scotland." *Paleontology*, volume 16, part 4 (1973), pages 651-663, 3 figures, plates 80-83.
- . "The Echinoderms and Permian-Triassic Time." In *The Permian and Triassic Systems and Their Mutual Boundary*, Memoir 2, 766 pages. Calgary, Alberta: Canadian Society of Petroleum Geologists, 1973.
- . "Evolutionary Trends and Their Functional Significance in the Post-Paleozoic Echinoids." *Journal of Paleontology*, volume 48, number 2, Memoir 5 (1974), 96 pages, 78 figures, 1 table, 1 chart.
- Rupke, N. A., D. J. Stanley, and R. Stuckenrath. "Late Quarternary Rates of Abyssal Mud Deposition in the Western Mediterranean Sea." *Marine Geology*, volume 16 (1974).
- Stanley, D. J. "Basin Plains in the Eastern Mediterranean: Significance in Interpreting Ancient Marine Deposits. I. Basin Depth and Configuration." *Marine Geology*, volume 15 (1973), pages 295-307.
- . "Modern Flysch Sedimentation in a Mediterranean Island Arc Setting." In Dott and Shaver, editors, *Geosynclinal Sedimentation*, SEPM Special Publication 19, 1974).
- . "Basin Plains in the Eastern Mediterranean: Significance in Interpreting Ancient Deposits. II. Basin Distribution." *C.R.P.-S.N.P.A. Journal*, volume 8 (1974).
- . "Dish Structures and Sand Flow in Ancient Submarine Valleys, French Maritime Alps." *C.R.P.-S.N.P.A. Journal*, volume 8 (1974).
- . "Pebbly Mud Transport in the Head of Wilmington Canyon." *Marine Geology*, volume 16 (1974).
- Stanley, D. J., H. Got, O. Leenhardt, and Y. Weiler. "Subsidence of the Western Mediterranean Basin in the Plio-Quaternary: Further Evidence." *Geology*, volume 2 (1974).
- Wear, C. M., D. J. Stanley, and J. E. Boula. "Shelfbreak Physiography between Wilmington and Norfolk Canyons, Mid-Atlantic Continental Margin. I. Physiography." *Marine Technical Society Journal*, volume 8 (1974).

#### Department of Vertebrate Zoology

- Aldrich, John W. "Disparate Sex Ratios in Waterfowl." Pages 482-489 in *Breeding Biology of Birds, Proceedings of a Symposium on Breeding Behavior and Reproductive Physiology in Birds, Denver, Colorado, February 1972*. Washington, D.C.: National Academy of Sciences, 1973.
- . [Review] "The Snipes: a Study of the Genus *Capella*," Leslie M. Tuck. *Arctic*, volume 26, number 4 (1973), pages 343-344.
- . [Review] "Grouse and Quails of North America," Paul A. Johnsgard. *Auk*, volume 91, number 2 (1974), pages 439-441.
- Ali, Salim, and S. Dillon Ripley. "Robins to Wagtails." *Handbook of the Birds of India and Pakistan*, volume 9, xvi + 306 pages, 10 plates, 80 maps, numerous line drawings. London: Oxford University Press, 1973.
- Ash, John S., and George E. Watson. "*Locustella naevia* in Ethiopia." *Bulletin of the British Ornithologists' Club*, volume 94, number 1 (1974), pages 39-40.
- Bury, R. Bruce. "Western Plethodon: Systematics and Biogeographic Relationships of the *Elongatus* Group." Abstract, *HISS News Journal*, volume 1, pages 56-57.
- . "The Cascade Frog, *Rana cascadae*, in the North Coast Range of California." *Northwest Science*, volume 47, number 4 (1973), pages 228-229, 1 figure.



- Bury, R. Bruce, and R. Marlow. "The Desert Tortoise. Will It Survive?" *National Parks and Conservation Magazine*, volume 47, number 6 (June 1973), pages 9-12, 5 figures.
- Bury, R. Bruce, and M. Martin. "Comparative Studies on the Distribution and Foods of Plethodontid Salamanders in the Redwood Region of Northern California." *Journal of Herpetology*, volume 7, number 4 (1973), pages 331-335, 3 tables.
- Bury, R. Bruce, and J. Wofheim. "Aggressive Behavior in Free-Living Pond Turtles (*Clemmys marmorata*)." *BioScience*, volume 23, number 11 (November 1973), pages 659-662, 4 figures, 2 tables.
- Busack, Stephen. "Morocco, My Way." *Carnegie Magazine*, volume 47, number 2 (February 1973), pages 77-82, 9 figures.
- Clapp, Roger, and Richard Banks. "Birds Imported into the United States in 1970." U. S. Department of the Interior, Bureau of Sport Fisheries and Wildlife, *Special Scientific Report — Wildlife*, Number 164, 102 pages.
- Cohen, Daniel M. "Zoogeography of the Fishes of the Indian Ocean." Pages 451-463 in *The Biology of the Indian Ocean, Ecological Studies 3*. Springer-Verlag, 1973.
- . "Viviparous Ophidioid Fish Genus *Calamopteryx*: New Species from Western Atlantic and Galapagos." *Proceedings of the Biological Society of Washington*, volume 86, number 28 (September 1973), pages 339-350.
- . "Families Argentinidae, Bathylagidae, Opisthoproctidae, Bregmacero-tidae, Eretmophoridae, Melanonidae," in *Check-List of the Fishes of the North-eastern Atlantic and of the Mediterranean*, volume 1, pages 152-157, 321-327. Paris: UNESCO, 1973.
- . "The Gadoid Fish Genus *Halargyreus* (Family Eretmophoridae) in the Southern Hemisphere." *Journal of the Royal Society of New Zealand*, volume 3, number 4 (1974), pages 629-634.
- . "The Ophidioid Fish Genus *Luciobrotula* in the Hawaiian Islands." *Pacific Science*, volume 28 (1974).
- Collette, Bruce B. "*Daector quadrizonatus*, a Valid Species of Freshwater Venomous Toadfish from the Rio Truando, Columbia, With Notes on Additional Material of Other Species of *Daector*." *Copeia*, number 2 (May 1973), pages 355-357.
- . "The Garfishes (Hemiramphidae) of Australia and New Zealand." *Records of the Australian Museum*, volume 29, number 2 (1974), pages 11-105, figures 1-23.
- . "*Potamorrhaphis petersi*, a New Species of Freshwater Needlefish (Belonidae) from the Upper Orinoco and Rio Negro." *Proceedings of the Biological Society of Washington*, volume 87, number 5 (1974), pages 31-40, figures 1-3.
- . "*Hyporhamphus australis* × *Hy. melanoichir*, a Hybrid Halfbeak (Hemiramphidae) from Australia." *Fishery Bulletin*, volume 71, number 1 (January 1973), pages 318-321.
- Crombie, Ronald I. "Comment on the Proposed Suppression of *Hyla crucialis* (Amphibia)." *Bulletin of Zoological Nomenclature*, volume 30, part 1 (July 1973), pages 4-6.
- . "The Ecology, Behavior, and Systematics of Jamaican Hylid Frogs." *Yearbook of the American Philosophical Society for 1973* (March 1974), pages 304-305.
- Eisenberg, John F., and Richard W. Thorington, Jr. "A Preliminary Analysis of a Neotropical Mammal Fauna." *Biotropica*, volume 5 (1973), pages 150-161, 1 figure, 6 tables.



- Farrand, John, Jr., and Storrs L. Olson. "The Correct Spelling of Scopoli's Specific Name for the Malaysian Crested Wood Partridge (*Rollulus*).<sup>1</sup>" *Bulletin of the British Ornithologists' Club*, volume 93 (June 20, 1973), pages 53-54.
- Gardner, Alfred L. "The Occurrence of *Streptoprocne zonaris albicincta* and *Ara militaris* in Chiapas, Mexico." *Condor*, volume 74, number 4 (winter 1972), pages 480-481. [Not previously reported.]
- . "The Systematics of the Genus *Didelphis* (Marsupialia: Didelphidae) in North and Middle America." *Special Publications The Museum Texas Tech University*, number 4 (July 1973), 81 pages, 14 figures, 7 tables.
- Gibbs, Robert H., Jr., E. Jarosewich, and Herbert L. Windom. "Heavy Metal Concentrations in Museum Fish Specimens: Effects of Preservatives and Time." *Science*, volume 184, number 4135 (1974), pages 475-477.
- Gibbs, Robert H., Jr., and James E. Morrow. "Astronesthidae," in *Check-list of the Fishes of the North-eastern Atlantic and of the Mediterranean*, volume 1, pages 126-129. Paris: UNESCO, 1973.
- Heyer, W. Ronald. "Systematics of the Marmoratus Group of the Frog Genus *Leptodactylus* (Amphibia, Leptodactylidae)." *Contributions in Science*, number 251 (November 9, 1973), 50 pages, 29 figures.
- . "Ecological Interactions of Frog Larvae at a Seasonal Tropical Location in Thailand." *Journal of Herpetology*, volume 7, number 4 (November 21, 1973), pages 337-361.
- . "Relationships of the marmoratus Species Group (Amphibia, Leptodactylidae) Within the Subfamily Leptodactylinae." *Contributions in Science*, number 253 (February 12, 1974), 46 pages, 7 figures, 4 tables.
- . "Vanzolinius, a New Genus Proposed for *Leptodactylus discodactylus* (Amphibia, Leptodactylidae)." *Proceedings of the Biological Society of Washington*, volume 87, number 11 (April 25, 1974), pages 81-90.
- . "Niche Measurements of Frog Larvae from a Seasonal Tropical Location in Thailand." *Ecology*, volume 55, number 3 (May 1974), pages 651-656.
- Johnson, Robert Karl, and Daniel M. Cohen. "Revision of the Chiasmodontid Fish Genera *Dysalotus* and *Kali*, with Descriptions of Two New Species." *Archiv für Fischereiwissenschaft*, volume 24, number 1 (1974).
- Jones, Clyde, and Robert D. Fisher. "Comments on the Type-Specimen of *Neotoma desertorum sola* Merriam 1894 (Mammalia: Rodentia)." *Proceedings of the Biological Society of Washington*, volume 86, number 37 (December 14, 1973), pages 435-438.
- Jones, Clyde, and R. Suttkus. "Colony Structure and Organization of *Pipistrellus subflavus* in Southern Louisiana." *Journal of Mammalogy*, volume 54, number 4 (November 1973), pages 962-968, 6 tables.
- King, W. B. "Conservation Status of Birds of Central Pacific Islands." *Wilson Bulletin*, volume 85 (1973), pages 89-103.
- . "Wedge-tailed Shearwater (*Puffinus pacificus*)," in King, editor, *Pelagic Studies of Seabirds in the Central and Eastern Pacific Ocean. Smithsonian Contributions to Zoology*, number 158 (1974), pages 53-95.
- King, W. B., and J. L. Lincer. "DDE Residues in the Endangered Hawaiian Dark-rumped Petrel (*Pterodroma phaeopygia sandwichensis*).<sup>2</sup>" *Condor*, volume 75 (1973), pages 460-461.
- Lachner, Ernest A. "Echeneididae," in *Check-list of the Fishes of the North-eastern Atlantic and of the Mediterranean*, volume 1, pages 637-640. Paris: UNESCO, 1973.
- Marshall, N. B., and D. M. Cohen. "Order Anacanthini (Gadiformes), Characters and Synopsis of Families," in *Fishes of The Western North Atlantic, Part 6. Memoir Sears Foundation for Marine Research*, number 1, part 6 (September 1973), pages 479-495.

- Melendez, Luis V., Muthiah D. Daniel, Norval W. King, Fernando C. Calvo, Horacio H. Barahona, Richard W. Thorington, Jr., Douglas A. Jackman, and Jill Cadwallader. "Isolation and *in vitro* Characterization of a *Herpesvirus* from Field Mouse (*Microtus pennsylvanicus*)." *Laboratory Animal Science*, volume 23, number 3 (1973), pages 385-390, 4 figures, 1 table.
- Nielsen, Jørgen G., and Daniel M. Cohen. "A Review of the Viviparous Ophidioid Fishes of the Genera *Bythites* Reinhardt and *Abythites* New (Pisces, Ophidioidei)." *Steenstrupia*, volume 3 (1973), pages 71-88.
- Olson, Storrs L. "Evolution of the Rails of the South Atlantic Islands (Aves: Rallidae)." *Smithsonian Contributions to Zoology*, number 152 (August 14, 1973), 53 pages.
- . "A Plumage Aberration of *Cariama cristata*." *Auk*, volume 90 (October 1, 1973), pages 912-914.
- . "A Study of the Neotropical Rail *Anurolimnas castaneiceps* (Aves: Rallidae) with a Description of a New Subspecies." *Proceedings of the Biological Society of Washington*, volume 86 (December 14, 1973), pages 403-412.
- . "A Classification of the Rallidae." *The Wilson Bulletin*, volume 85 (December 31, 1973), pages 381-416.
- . "A Reappraisal of the Fossil Heron *Palaeophoyx columbiana* McCoy." *Auk*, volume 91 (January 29, 1974), pages 179-180.
- . "*Tantalus milneedwardsii* Shufeldt — a Synonym of the Miocene Pheasant *Miophasianus altus* (Milne-Edwards)." *The Wilson Bulletin*, volume 86, number 2 (May 8, 1974), pages 110-113.
- . [Review] "Preliminary Observations on the Phylogenesis of Thegosis," G. A. Tunnicliffe. *Bird-Banding*, volume 45 (spring 1974), page 188.
- . "A Melanistic White-tailed Tropicbird." *Condor*, volume 76 (May 30, 1974), pages 217-218.
- . "The Pleistocene Rails of North America." *Condor*, volume 76 (May 30, 1974), pages 169-174.
- . "Purple Gallinule Carrying Young." *Florida Field Naturalist*, volume 2 (1974).
- Olson, Storrs L., and John Farrand, Jr. "*Rhegminornis* Restudied: a Tiny Miocene Turkey." *The Wilson Bulletin*, volume 86, number 2 (May 8, 1974), pages 114-120.
- Randall, John E., and Victor G. Springer. "The Indo-Pacific Labrid Fish Genera *Labrichthys* and *Diproctacanthus* with Description of a New Related Genus, *Larabicus*." *Proceedings of the Biological Society of Washington*, volume 86, number 23 (September 28, 1973), pages 279-297.
- Riopelle, A., and Clyde Jones. "Field Studies of Primates in Rio Muni, West Africa." *National Geographic Society Research Report, 1966 Projects* (1973), pages 219-223.
- Ripley, S. Dillon. "Afterword: On First Entering Evelyn's Laboratory." in *Growth by Intussusception. Ecological Essays in Honor of G. Evelyn Hutchinson. Transactions of The Connecticut Academy of Sciences*, volume 44 (1972), pages 439-441.
- . "Museums and the Natural Heritage." *Museum, UNESCO*, volume 25, number 1/2 (1973), pages 10-14.
- . "Conservation Comes of Age." Contribution number 7, pages 151-162, in *Aspects of Science-Technology, General Readings 3*. Tokyo: Kenkyusha Ltd., 1973.
- . "From Plumes to Pollution." *Birds*, volume 4, number 11 (1973), pages 304-305.



- . [Review] "A Catalogue of the Ellis Collection of Ornithological Books in the University of Kansas Libraries." *The Auk*, volume 90, number 4 (1973), pages 930-931.
- . "Foreward" in *Birds of the Tropics*. London: Orbis Publishing, 1973.
- Ripley, S. Dillon, and Storrs L. Olson. "Re-identification of *Rallus pectoralis deignani*." *Bulletin of the British Ornithologists' Club*, volume 93, number 3 (September 20, 1973), page 115.
- Schlitter, Duane A. "A New Species of Gerbil from South West Africa with Remarks on *Gerbillus tytonis* Bauer and Niethammer, 1959 (Rodentia: Gerbillinae)." *Bulletin of the Southern California Academy of Sciences*, volume 72, number 1 (April 1973), pages 13-18, 1 figure, 1 table.
- Schlitter, Duane A., and Henry W. Setzer. "New Rodents (Mammalia: Cricetidae, Muridae) from Iran and Pakistan." *Proceedings of the Biological Society of Washington*, volume 86, number 14 (May 31, 1973), pages 163-174.
- Skarr, R., Roger Clapp, and Richard Banks. "Re-evaluation of some Montana Bird Records." *Condor*, volume 75, number 1 (spring 1973), pages 132-133.
- Stephens, John S., and Victor G. Springer. "Clinid Fishes of Chile and Peru, with Description of a New Species, *Myxodes ornatus*, from Chile." *Smithsonian Contributions to Zoology*, number 159 (January 21, 1974), 24 pages.
- Watson, George E. "Seabird Colonies in the Islands of the Aegean Sea." *National Geographic Society Research Reports, 1966 Projects* (1973), pages 299-305.
- . "The Correct Gender of *Daption* Stephens 1826." *The Auk*, volume 91, number 2 (April 1974), pages 419-421.
- Watson, George E., J. Phillip Angle, and M. Ralph Browning. "First North American Record of Little Bunting in Eastern Chukchi Sea." *The Auk*, volume 91, number 2 (April 1974), page 417.
- Weske, John. "Nest of Poor-will in Cimarron County, Oklahoma." *Bulletin of the Oklahoma Ornithological Society*, volume 6, number 3 (September 1973), page 22.
- Wetmore, Alexander. "The Egg of a Collared Forest-Falcon." *The Condor*, volume 76, number 1 (1974), page 103.
- . "A Pleistocene Record for the White-Winged Scoter in Maryland." *The Auk*, volume 90, number 4 (1973), pages 910-911.
- Wilson, Don E. "Reproduction in Neotropical Bats." *Periodicum Biologorum*, volume 75 (1973), pages 215-217, 3 figures.
- . "Wasps as a Defense Mechanism of Katydid." *The American Midland Naturalist*, volume 89, number 2 (April 1973), pages 451-455, 3 figures, 1 table. [Not previously reported.]
- . "The Systematic Status of *Perognathus merriami* Allen." *Proceedings of the Biological Society of Washington*, volume 86, number 15 (May 31, 1973), pages 175-192. [Not previously reported.]
- Wilson, Don E., and Ronald H. Pine. "Baiting for Toads." *Copeia*, number 1 (March 8, 1974), page 252.
- Wilson, Don E., and Richard K. LaVal. "*Myotis nigricans*." *Mammalian Species*, number 39, 3 pages, May 1974.

#### LECTURES AND SEMINARS

- Heaney, Lawrence R., and Richard W. Thorington, Jr. "The Limb Proportions of Squirrels, Sciuridae." Annual Meeting of the American Society of Mammalogists, June 3, 1974.
- Olson, Storrs L. "The Past and Present Birdlife of Fernando de Noronha Island, South Atlantic Ocean." American Ornithologists' Union, Provincetown, Massachusetts, October 9, 1973.



- . "A Tody from the Oligocene of Wyoming." Cooper Ornithological Society, Flagstaff, Arizona, May 11, 1974.
- Thorington, Richard W., Jr., and Robert Vorek. "Observations on the Taxonomy and Skeletal Development of the Night Monkey, *Aotus*." Fifth Annual Assembly of the New England Regional Primate Research Center, Harvard Medical School, May 13, 1974.
- Watson, George E., and George J. Divoky. "Marine Birds in the Beaufort Sea." Symposium on Beaufort Sea Coastal and Shelf Research, Arctic Institute of North America, San Francisco, California, January 1974.

#### NATIONAL ZOOLOGICAL PARK

- Block, Judith A. "Hand-rearing Seven-banded Armadillos (*Dasypus septemcinctus*) at the National Zoological Park, Washington." *International Zoo Yearbook*, volume 14 (1974), pages 210-214.
- Buechner, H. K. "The Sociable '*Leo serengeti*'." *Quarterly Review of Biology*, volume 48 (1973), pages 625-627.
- Buechner, H. K., and H. D. Roth. "The Lek System in Uganda Kob Antelope." *American Zoologist*, volume 14 (1973), pages 143-160.
- Buechner, Helmut K., H. R. Stroman, and William A. Xanten Jr. "Breeding Behavior of Sable Antelope (*Hippotragus niger*)." *International Zoo Yearbook*, volume 14 (1974), pages 133-136.
- Bush, M., R. M. Heller, and A. E. James. "Atlanto-Axial Subluxation in a Dog." *Journal of the American Veterinary Medical Association*, volume 163, number 5 (1973), pages 473-474.
- Bush, M., R. J. Montali, and A. E. James. "Alveolar Cell Carcinoma in a Cat." *Journal of the American Veterinary Medical Association*, volume 162, number 7 (1973), pages 573-574.
- . "Subcapsular Hematomas Associated with Renal Lymphoma in a Cat: A Radiographic Study." *Journal of the American Veterinary Radiology Society*, XIV (1973), pp. 27-31.
- Bush, M., R. J. Montali, C. W. Gray, and L. M. Neeley. "Caesarean Section in a Bongo Antelope." *Journal of the American Veterinary Medical Association*, volume 163, number 6 (1973), pages 552-553.
- Bush, M., R. J. Montali, L. M. Neeley, C. W. Gray, and A. E. James. "Pyometra with Peritonitis in a Lioness (*Panthera leo*)." *Journal of Zoo Animal Medicine*, volume 5, number 1 (1974), pages 21-23.
- Collins, Larry R. *Monotremes and Marsupials, A Reference for Zoological Institutions*. 323 pages. Washington, D.C.: Smithsonian Institution Press, 1973.
- Collins, Larry R., and James K. Page, Jr. *Ling-Ling and Hsing-Hsing, Year of the Panda*. New York: Doubleday/Anchor Press, 1973.
- Eisenberg, J. F. "Mammalian Social Systems: Are Primate Social Systems Unique?" *Symposium of IV International Congress of Primatology*, Karger, Basel, volume 1 (1973), pages 232-249.
- . "Reproduction in Two Species of Spider Monkeys, *Ateles fusciceps* and *A. Geoffroyi*." *Journal of Mammalogy*, volume 55 (1974), pages 955-957.
- . [Review] *Motivation of Human and Animal Behavior*, by K. Lorenz and P. Leyhausen. New York: Von Nostrand Reinhold Company, 1973. *Journal of Mammalogy*, volume 55 (1974), page 253.
- . [Review] *The Cheetah, The Biology, Ecology, and Behavior of an Endangered Species*, by R. L. Eaton. New York: Van Nostrand Reinhold Company, 1974. *Smithsonian*, volume 5 (April 1974), pages 86-87.
- Eisenberg, J. F., and E. Maliniak. "The Reproduction of the Genus *Microgale* in Captivity." *International Zoo Yearbook*, volume 14 (1974), pages 108-110.

- Eisenberg, J. F., and R. W. Thorington, Jr. "A Preliminary Analysis of a Neotropical Mammal Fauna." *Biotropica*, volume 5 (1973), pages 150-161.
- Elliott, R., E. Smith, and M. Bush. "Preliminary Report on Hematology of Birds of Prey." *Journal of Zoo Animal Medicine*, volume 5, number 2 (1974), pages 11-16.
- Greenwell, G. A. (Contributor). "Helping Ducklings Out of the Egg." Pages 99-102 in *Raising Wild Ducks in Captivity*, edited by Dayton Hyde. New York: E. P. Dutton & Company, 1974.
- . "Imprinting." Pages 139-141 in *Raising Wild Ducks in Captivity*, edited by Dayton Hyde. New York: E. P. Dutton & Company, 1974.
- . "Waterfowl Predators Versus 'Robin's Roost.'" Pages 196-200 in *Raising Wild Ducks in Captivity*, edited by Dayton Hyde. New York: E. P. Dutton & Company, 1974.
- James, A. E., E.-P. Strecker, and M. Bush. "A Catheter Technique for the Production of Communication Hydrocephalus." *Radiology*, volume 106, number 2 (1973), pages 437-439.
- Kleiman, Devra. "Activity Rhythms in the Giant Panda (*Ailuropoda melanoleuca*): An Example of the Use of Checksheets for Recording Behaviour in Zoos." *International Zoo Yearbook*, volume 14 (1974), pages 165-169.
- . "Estrous Cycles and Behavior of Captive Tigers." *The World's Cats*, edited by R. L. Eaton. Volume 2 (1974), pages 60-75.
- . "Scent-Marking in the Binturong, *Arctictis binturong*." *Journal of Mammalogy*, volume 55 (1974), pages 224-227.
- . [Review] *The Ecology of Stray Dogs*, by Alan Beck. Baltimore: York Press, 1973. *Journal of Mammalogy*, volume 55 (1974), pages 250-251.
- . [Review] *The Spotted Hyena*, by Hans Kruuk. Chicago and London: University of Chicago Press, 1972. *Animal Behaviour*, volume 21 (1973), pages 413-414.
- Kleinman, D. G., and J. F. Eisenberg. "Comparisons of Canid and Felid Social Systems from an Evolutionary Perspective." *Animal Behaviour*, volume 21 (1973), pages 637-659.
- Montgomery, G. G., W. W. Cochran, and M. E. Sunquist. "Radiolocating Arboreal Vertebrates in Tropical Forest." *Journal of Wildlife Management*, volume 37, number 3 (1973), pages 426-428.
- Montgomery, G. G., S. A. Rand, and M. E. Sunquist. "Postnesting Travels of Iguanas from a Nesting Aggregation." *Copeia*, volume 3 (1973), pages 620-622.
- Montgomery, G. G., and M. E. Sunquist. "Contact-Distress Calls of Young Sloths." *Journal of Mammalogy*, volume 55 (1974), pages 211-213.
- Murphy, M. R. "Relative Importance of Tactual and Nontactual Stimuli in Eliciting Lordosis in the Female Golden Hamster." *Behavioral Biology*, volume 2 (1974), pages 115-120.
- . "Sexual Preferences of Turkish, Syrian, and Romanian Hamsters." *American Zoologist*, volume 13 (1973), page 1260.
- Perry, John, and Peter Kibbee. "The Capacity of American Zoos." *International Zoo Yearbook*, volume 14 (1974), pages 240-247.
- Rudran, R. "Adult Male Replacement in One-Male Troops of Purple-Faced Langurs (*Presbytis senex senex*) and Its Effect on Population Structure." *Folia Primatology*, volume 19 (1973), pages 166-192.
- . "The Reproductive Cycles of Two Subspecies of Purple-Faced Langurs (*Presbytis senex*) with Relation to Environmental Factors." *Folia Primatology*, volume 19 (1973), pages 41-60.



- Sauer, R. M. "Mystery Case No. 3: Pulmonary Osteoarthropathy in a Lion." *Journal of Comparative Pathology*, volume 5, number 2 (May 1973), page 4. [Not previously reported.]
- Squire, R. A., M. Bush, E. C. Melby, L. M. Neeley, and B. Yarborough. "Clinical and Pathologic Study of Canine Lymphoma: Clinical Staging, Cell Classification, and Therapy." *Journal of the National Cancer Institute*, volume 51, number 2 (1973), pages 565-574.
- Strecker, E. -P., B. Konigsmark, M. Bush, and A. E. James. "Cerebrospinal Fluid Flow Alterations in the Dog with Chemical Meningitis." *Investigative Radiology*, volume 8, number 1 (1973), pages 33-42.
- Sunquist, M. E., and G. G. Montgomery. "Activity Patterns of a Translocated Silky Anteater (*Cyclopes didactylus*)." *Journal of Mammalogy*, volume 54, number 3 (1973), page 782.
- Weeks, Sam E., and Mitchell Bush. "Sexing Ratities." *International Zoo Yearbook*, volume 14 (1974), pages 141-142.
- Wilson, S., and D. G. Kleiman. "Eliciting Play: A Comparative Study (*Octodon*, *Octodontomys*, *Pediolagus*, *Phoca*, *Choeropsis*, *Ailuropoda*)." *American Zoologist*, volume 14 (1974), pages 341-370.
- Wolf, Muriel D., and Lee D. Schmeltz. "Identification and Medical Treatment of Snake Bites." *Clinical Proceedings*, volume 30, number 3 (1974), pages 64-73.
- Wurster-Hill, D. H., and C. W. Gray. "Giemsa Banding Pattern and the Chromosomes of 12 Species of Cats (*Felidae*)." *Cytogenetics and Cell Genetics*, volume 17, number 6 (1973).
- Zook, B. C. "Lead Intoxication in Urban Dogs." *Clinical Toxicology*, volume 6 (March 1973), pages 377-388. [Not previously reported.]
- . "Lead Poisoning in Urban Pet and Zoo Animals." *Clinical Toxicology Bulletin*, volume 3 (May 1973), pages 91-100. [Not previously reported.]
- Zook, B. C., J. F. Eisenberg, and E. McLanahan. "Some Factors Affecting the Occurrence of Lead Poisoning in Captive Primates." *Journal of Medical Primatology*, volume 62 (December 1973), pages 206-217.
- Zook, B. C., and R. M. Sauer. "Leucoencephalomyelosis in Nonhuman Primates Associated with Lead Poisoning." *Journal of Wildlife Diseases*, volume 9 (January 1973), pages 61-63. [Not previously reported.]
- Zook, B. C., R. M. Sauer, M. Bush, and C. W. Gray. "Lead Poisoning in Zoo-Dwelling Primates." *American Journal of Physical Anthropology*, volume 28, number 2 (March 1973), pages 415-424. [Not previously reported.]

#### OFFICE OF INTERNATIONAL AND ENVIRONMENTAL PROGRAMS

- Arthur, Michael A., and Keith L. Simmons. "Bottom Current Activity Between the Antarctic and Australian Continent: Distribution and Effects EOS." *Transactions of American Geophysical Union*, volume 55, number 4, page 372, 1974.
- Higgins, Robert P. "Kinorhyncha." In A. C. Giese and J. I. Pearse, editors, *Reproduction of Marine Invertebrates*, volume 1, 546 pages. N.Y.: Academic Press, 1974.
- Houbrick, Richard S. "Bruguiera (1789), (Gastropoda): Proposed Preservation by Designation of a Type-Species under the Primary Powers. Z. N. (S.) 2032." *Bulletin of Zoological Nomenclature*, volume 30, number 1, pages 104-107, 1973.
- . "Gross Studies on the Genus *Cerithium* (Gastropoda Prosobranchia) with Notes on Ecology and Microhabitats." *Nautilus*, volume 88, number 1, pages 14-27, 1974.



- . "Studies on the Reproductive Biology of the Genus *Cerithium* (Gastropoda: Prosobranchia) in the Western Atlantic." *Bulletin Marine Science*, volume 23, number 4, pages 874-904, 1974.

### *Center for Short-Lived Phenomena*

- "A Plan for the Implementation of the United Nations Global Environmental Monitoring System (GEMS)." Smithsonian Institution, May 1974.
- Asher, R. A., M. M. Miller, J. McCracken, and C. Petrie. "An Unusual Glacier Cave in the Lemon Glacier, Alaska—An Englacial Drainage and Reservoir System." April 1974.
- Citron, R. "International Environmental Monitoring Programs—A Directory." Smithsonian Institution, January 1974.
- "CSLP 1973, Annual Report and Review of Events." June 1974.
- "Directory of National and International Pollution Monitoring Programs; Preliminary Results of a Worldwide Survey Prepared for the United Nations Environmental Program." 3 volumes. Smithsonian Institution, February 1974.
- Romano, R., and C. Sturiale. "Preliminary Report on the Eruption of Mt. Etna of January–March 1974." May 21, 1974.

### *RADIATION BIOLOGY LABORATORY*

- Butzer, Karl W., G. J. Fock, R. Stuckenrath, and A. Zilch. "Paleo-hydrology of Late Pleistocene Lakes in the Alexandersfontein Pan, Kimberley, South Africa." *Nature*, volume 243 (1973), pages 328-330.
- Butzer, Karl W., David M. Helgren, G. J. Fock, and Robert Stuckenrath. "Alluvial Traces of the Lower Vaal River, South Africa: A Reappraisal and Reinvestigation." *Journal of Geology*, volume 81 (1973), pages 341-362.
- Craker, L. E., F. B. Abeles, and W. Shropshire, Jr. "Light-induced Ethylene Production in Sorghum." *Plant Physiology*, volume 51 (1973), pages 1082-1083.
- Faust, Maria. "Structure of the Periplast of *Cryptomonas ovata* var. *Palustris*." *Journal of Phycology*, volume 10 (1974), pages 121-124.
- Faust, Maria, and Elisabeth Gantt. "Effect of Light Intensity and Glycerol on the Growth, Pigment Composition and Ultrastructure of *Chroomonas* sp." *Journal of Phycology*, volume 9 (1973), pages 489-495.
- Goldberg, B., and W. H. Klein. "Radiometer to Monitor Low-Levels of Ultraviolet Irradiance." *Applied Optics*, volume 13 (1974), pages 493-496.
- Gray, Brian, C. A. Lipschultz, and E. Gantt. "Phycobilisomes from a Blue-Green Algae, *Nostoc* sp." *Journal of Bacteriology*, volume 116 (1973), pages 471-478.
- Honeycutt, Richard C., and M. M. Margulies. "Protein Synthesis in *Chlamydomonas reinhardi*." *Journal of Biological Chemistry*, volume 248 (1973), pages 6145-6153.
- Lyons, John B., and James E. Mielke. "Holocene History of a Portion of Northernmost Ellesmere Island." *Arctic*, volume 26 (1973), pages 314-323.
- Margulies, Maurice M. "An Evaluation of the Evidence Concerning the Sites of Synthesis of Chloroplast Proteins." *Atti del Seminario di Studi Biologici, Univ. of Bari, Italy*, volume V (1973), pages 81-90.
- Margulies, Maurice M., and Allan Michaels, with the technical assistance of H. Lee Tiffany. "Ribosomes Bound to Chloroplast Membranes in *Chlamydomonas reinhardi*." *Journal of Cell Biology*, volume 60 (1974), pages 65-77.
- Shropshire, W., Jr. "Photoinduced Parental Control of Seed Germination and the Spectral Quality of Solar Radiation." *Solar Energy*, volume 15 (1973), pages 99-105.

———. "Stimulus-Response Systems of *Phycomyces blakesleeenanus*." Chapter, pages 553-568, in *Mycology Guidebook*, Mycological Society of America, edited by Russell B. Stevens. University of Washington Press, 1974.

#### SMITHSONIAN ASTROPHYSICAL OBSERVATORY

- Aannestad, P. A., and G. B. Field. "Hot H<sub>2</sub> and Interstellar Shocks." *Astrophysical Journal (Letters)*, volume 186 (1973), pages L29-L32.
- Aksnes, K. "Mutual Phenomena of the Galilean Satellites, 1973-74" (Letter). *Sky and Telescope*, volume 45 (1973), pages 271 and 294.
- . "Orbit Improvement from Satellite Imaging Data Obtainable from Outer Planet Missions." *Celestial Mechanics*, volume 8 (1973), pages 99-110.
- . "On the Choice of Reference Orbit, Canonical Variables, and Perturbation Method in Satellite Theory" (abstract). *Celestial Mechanics*, volume 8 (1973), page 259.
- . "Mutual Phenomena of Jupiter's Galilean Satellites, 1973-74." *Icarus*, volume 21 (1974), pages 100-111.
- . "Ephemeris for Neptune II (Nereid)." *International Astronomical Union Circular*, number 2665 (1974).
- . "Flygande Tallerkar 25 år Etter, Del I (25 Years of Flying Saucers, Part I)." *Naturen*, volume 98 (1974), pages 35-47.
- Austin, J. A., D. H. Levy, C. A. Gottlieb, and H. E. Radford. "The Microwave Spectrum of the HCO Radical." *Journal of Chemical Physics*, volume 60 (1974), pages 207-215.
- Avni, Y., J. N. Bahcall, P. C. Joss, D. Q. Lamb, E. Schreier, and H. Tananbaum. "Upper Limit on 2.5-Second Pulsations from Hercules X-1." *Astrophysical Journal (Letters)*, volume 188 (1974), pages L35-L36.
- Bahcall, J. N., and E. M. Kellogg. "Radio Stars and X-Ray Sources." *Nature, Physical Science*, volume 244 (1973), pages 135-136.
- Ball, J. A., J. A. Wheeler, and E. L. Fireman. "Photoabsorption and Charge Oscillation of the Thomas-Fermi Atom." *Reviews of Modern Physics*, volume 45 (1973), pages 333-352.
- Becklin, E. E., J. A. Frogel, D. E. Kleinmann, G. Neugebauer, S. E. Persson, and C. G. Wynn-Williams. "Infrared Emission from the Southern H II Region H2-3." *Astrophysical Journal*, volume 187 (1974), pages 487-490.
- Beichman, C. A., and E. J. Chaisson. "Possible Evidence for a Large Magnetic Field in the Orion Infrared Nebula." *Astrophysical Journal (Letters)*, volume 190 (1974), pages L21-L24.
- Black, J. H., E. J. Chaisson, J. A. Ball, H. Penfield, and A. E. Lilley. "λ 9-cm CH Emission from Comet Kohoutek (1973f)." *International Astronomical Union Circular*, number 2621 (1974).
- Black, J. H., and A. Dalgarno. "The Cosmic Abundance of Deuterium." *Astrophysical Journal (Letters)*, volume 184 (1973), pages L101-L104.
- . "The Formation of CH in Interstellar Clouds." *Astrophysical Letters*, volume 15 (1973), pages 79-82.
- Black, J. H., and G. G. Fazio. "Production of Gamma Radiation in Dense Interstellar Clouds by Cosmic-Ray Interactions." *Astrophysical Journal (Letters)*, volume 185 (1973), pages L7-L11.
- Bottcher, C., and K. K. Docken. "Autoionizing States of the Hydrogen Molecule." *Journal of Physics B (Atomic and Molecular Physics)*, volume 7 (1974), pages L5-L8.
- Brinckman, A. C., D. R. Parsignault, E. Schreier, H. Gursky, E. Kellogg, H. Tananbaum, and R. Giacconi. "Correlation Analysis of X-Ray Emission from Cygnus X-1." *Astrophysical Journal*, volume 188 (1974), pages 603-608.



- Brownlee, D. E., and P. W. Hodge. "Ablation Debris and Primary Micrometeoroids in the Stratosphere." Pages 1139-1151 in M. J. Rycroft and S. K. Runcorn, editors, *Space Research XIII*. Berlin: Akademie-Verlag, 1973.
- Brownlee, D. E., P. W. Hodge, and W. Bucher. "The Physical Nature of Interplanetary Dust as Inferred by Particles Collected at 35 km." Pages 291-295 in C. L. Hemenway, P. M. Millman, and A. F. Cook, editors, *Evolutionary and Physical Properties of Meteoroids, Proceedings of the International Astronomical Union's Colloquium No. 13*. NASA SP-319, 1973.
- Cameron, A. G. W. "Major Variations in Solar Luminosity?" *Reviews of Geophysics and Space Physics*, volume 11 (1973), pages 505-510.
- . "Interstellar Grains in Museums?" Pages 545-547 in J. M. Greenberg and H. C. van de Hulst, editors, *Interstellar Dust and Related Topics, Proceedings of the International Astronomical Union Symposium No. 52*. Dordrecht, Holland: D. Reidel Publishing Company, 1973.
- . "Abundances of the Elements in the Solar System." *Space Science Reviews*, volume 15 (1973), pages 121-146.
- . "Cosmic Rays from Supernovae and Comments on the Vela X Pre-Supernova." Pages 74-88 in S. P. Maran, J. C. Brandt, and T. P. Stecher, editors, *The Gum Nebula and Related Problems*. NASA SP-332, 1973.
- . "The Role of Dust in Cosmogony." Presented at The Dusty Universe Symposium honoring Dr. Fred L. Whipple, Smithsonian Astrophysical Observatory, Cambridge, Massachusetts, October 1973.
- . "Are Large Time Differences in Meteorite Formation Real?" *Nature*, volume 246 (1973), pages 30-32.
- Carleton, N., editor. *Astrophysics, Part A: Optical and Infrared*, volume 12 in *Methods of Experimental Physics*. New York: Academic Press, 1974.
- Carleton, N. P., and W. A. Traub. "Observations of Spatial and Temporal Variations in the Jovian H<sub>2</sub> Quadrupole Lines." Presented at the International Astronomical Union Symposium No. 65, Exploration of the Planetary System, Toruń, Poland, September 1973.
- . "A Search for H<sub>2</sub>O and CH<sub>4</sub> in Comet Kohoutek." Presented at the Planetary Sciences Division Meeting of the American Astronomical Society, Palo Alto, California, April 1974.
- Carleton, N. P., W. A. Traub, and J. Noxon. "A Search for Martian Dayglow Resulting from Ozone Photolysis." Presented at the Planetary Sciences Division Meeting of the American Astronomical Society, Palo Alto, California, April 1974.
- Carlsten, J. L., T. J. McIlrath, and W. H. Parkinson. "Measurement of the Photoionization Cross Section from the Laser-Populated <sup>3</sup>D Metastable Levels in Barium." *Journal of Physics B (Atomic and Molecular Physics)*, volume 7 (1974), pages L244-L248.
- Chaffee, F. H., Jr. "Line Spectra in Interstellar Clouds. I. The Perseus 2 Cloud." *Astrophysical Journal*, volume 189 (1974), pages 427-440.
- Chaisson, E. J. "Heavy-Element Recombination Lines." Presented at the 141st Meeting of the American Astronomical Society, Tucson, Arizona, December 1973; abstract in *Bulletin of the American Astronomical Society*, volume 5 (1973), page 451.
- . "Microwave Spectroscopic Mapping of Gaseous Nebulae. III. Hydrogen, Helium, and Carbon in Orion A." *Astrophysical Journal*, volume 186 (1973), pages 545-553.
- . "Microwave Spectroscopic Mapping of Gaseous Nebulae. IV. Excited Hydrogen in Sagittarius B2." *Astrophysical Journal*, volume 186 (1973), pages 555-572.



- . "On the Recombination-Line Observations toward Supernova 3C 391." *Astrophysical Journal*, volume 189 (1974), pages 69-72.
- . "A Correlation Study of Carbon Ions and Hydroxyl Molecules toward Galactic Nebulae." *Astronomical Journal*, volume 79 (1974), pages 555-564.
- Chaisson, É. J., and C. J. Lada. "Recombination Lines from H I Gas toward Orion A." *Astrophysical Journal*, volume 189 (1974), pages 227-237.
- Coleman, P. L., A. N. Bunner, W. L. Kraushaar, D. McCammon, F. O. Williamson, E. Kellogg, and D. Koch. "X-Ray Spectrum of the Tycho Supernova." *Astrophysical Journal (Letters)*, volume 185 (1973), pages L121-L125.
- Colombo, G., F. A. Franklin, and I. I. Shapiro. "On the Formation of the Orbit-Orbit Resonance of Titan and Hyperion." *Astronomical Journal*, volume 79 (1974), pages 61-72.
- Cook, A. F. "A Working List of Meteor Streams." Pages 183-191 in C. L. Hemenway, P. M. Millman, and A. F. Cook, editors, *Evolutionary and Physical Properties of Meteoroids, Proceedings of the International Astronomical Union's Colloquium No. 13*. NASA SP-319, 1973.
- Cook, A. F., G. Forti, R. E. McCrosky, A. Posen, R. B. Southworth, and J. T. Williams. "Combined Observations of Meteors by Image-Orthicon Television Camera and Multistation Radar." Pages 23-44 in C. L. Hemenway, P. M. Millman, and A. F. Cook, editors, *Evolutionary and Physical Properties of Meteoroids, Proceedings of the International Astronomical Union's Colloquium No. 13*. NASA SP-319, 1973.
- Cook, A. F., C. L. Hemenway, P. M. Millman, and A. Swider. "An Unusual Meteor Spectrum." Pages 153-159 in C. L. Hemenway, P. M. Millman, and A. F. Cook, editors, *Evolutionary and Physical Properties of Meteoroids, Proceedings of the International Astronomical Union's Colloquium No. 13*. NASA SP-319, 1973.
- Dalgarno, A. "The Z-Dependence of Oscillator Strengths." *Nuclear Instruments and Methods*, volume 110 (1973), pages 183-188.
- Dalgarno, A., J. H. Black, and J. C. Weisheit. "Ortho-Para Transitions in H<sub>2</sub> and the Fractionation of HD." *Astrophysical Letters*, volume 14 (1973), pages 77-79.
- Dalgarno, A., E. Herbst, S. Novick, and W. Klemperer. "Radio Spectrum of H<sub>2</sub>D<sup>+</sup>." *Astrophysical Journal (Letters)*, volume 183 (1973), pages L131-L133.
- Dalgarno, A., M. Oppenheimer, and R. S. Berry. "Chemionization in Interstellar Clouds." *Astrophysical Journal (Letters)*, volume 183 (1973), pages L21-L24.
- Dalgarno, A., M. Oppenheimer, and J. H. Black. "Formation of Formaldehyde in Interstellar Clouds." *Nature, Physical Science*, volume 145 (1973), pages 100-101.
- Dalgarno, A., and K. M. Sando. "The Extreme Wings of Atomic Emission and Absorption Lines." *Comments on Atomic and Molecular Physics*, volume 4 (1973), pages 29-33.
- Davis, R. J. "The Astronomical Data File for the Telescope Catalog." Presented at the 142nd Meeting of the American Astronomical Society, Lincoln, Nebraska, March 1974; abstract in *Bulletin of the American Astronomical Society*, volume 6 (1974), page 218.
- . "The Telescope Survey and the Galactic Distribution of Interstellar Absorption." Presented at the Royal Society Discussion Meeting, Astronomy in the Ultraviolet, London, England, April 1974.
- Dickinson, D. F. "Who Lives between the Clouds?" *The Alcalde*, July 1973, pages 14-18.
- . "Water Vapor in Infrared Stars" (abstract). *Bulletin of the American Astronomical Society*, volume 5 (1973), page 318.

- Docken, K. K., and T. P. Schafer. "Spectroscopic Information on Ground-State Ar<sub>2</sub>, Kr<sub>2</sub>, Xe<sub>2</sub> from Interatomic Potentials." *Journal of Molecular Spectroscopy*, volume 46 (1973), pages 454-459.
- Fazio, G. G. "Observations of High-Energy Gamma Rays." Pages 153-164 in F. W. Stecker and J. I. Trombka, editors, *Gamma-Ray Astrophysics*. NASA SP-339, 1973.
- . "X-Ray and Gamma-Ray Detection by Means of Atmospheric Interactions: Fluorescence and Čerenkov Radiation." Pages 315-359 in N. Carleton, editor, *Astrophysics, Part A: Optical and Infrared*, volume 12 in *Methods of Experimental Physics*. New York: Academic Press, 1974.
- Fazio, G. G., D. E. Kleinmann, R. W. Noyes, E. L. Wright, and F. J. Low. "A Balloon-Borne 1-Meter Telescope for Far-Infrared Astronomy." Presented at the Symposium on Telescope Systems for Balloon-Borne Research, NASA Ames Research Center, Moffett Field, California, February 1974.
- Fazio, G. G., D. E. Kleinmann, R. W. Noyes, E. L. Wright, M. Zeilik II, and F. J. Low. "High-Resolution Maps of H II Regions at Far-Infrared Wavelengths." Presented at the 8th ESLAB Symposium, Frascati, Italy, June 1974.
- Field, G. B. "Interstellar Atoms, Molecules, and Dust." Presented at the International Astronomical Union Extraordinary General Assembly, Warsaw, Poland, September 1973.
- . "Intergalactic Gas." Presented at the International Astronomical Union Symposium No. 63, Confrontation between Cosmological Theories and Observational Data, Krakow, Poland, September 1973.
- . "The Composition of Interstellar Dust." Presented at The Dusty Universe Symposium honoring Dr. Fred L. Whipple, Smithsonian Astrophysical Observatory, Cambridge, Massachusetts, October 1973.
- . "Missing Mass in the Universe." Pages 289-317 in *Fundamental Interactions in Physics and Astrophysics*, volume 3 in *Studies in the Natural Sciences*. New York: Plenum Publishing Corporation, 1973.
- . "On Interstellar Depletion." Presented at the 141st Meeting of the American Astronomical Society, Tucson, Arizona, December 1973; abstract in *Bulletin of the American Astronomical Society*, volume 6 (1974), page 262.
- . "Intergalactic Matter in Clusters of Galaxies." Presented at the High-Energy Astrophysics Division Meeting of the American Astronomical Society, Tucson, Arizona, December 1973; abstract in *Bulletin of the American Astronomical Society*, volume 6 (1974), page 275.
- . "Interstellar Abundances: Gas and Dust." *Astrophysical Journal*, volume 187 (1974), pages 453-459.
- Field, G. B., H. Arp, and J. Bahcall. *The Redshift Controversy, Frontiers in Physics Lecture Note Series*. Reading, Massachusetts: W. A. Benjamin, Inc., 1974.
- Fireman, E. L. "Interstellar Absorption of X-Rays." *Astrophysical Journal*, volume 187 (1974), pages 57-60.
- . "History of the Lunar Regolith from Neutrons" (abstract). Pages 230-233 in *Lunar Science V*. Houston, Texas: Lunar Science Institute, 1974.
- Fireman, E. L., J. D'Amico, and J. DeFelice. "Radioactivities versus Depth in Apollo 16 and 17 Soil." Pages 2131-2144 in *Proceedings of the Fourth Lunar Science Conference, Geochimica et Cosmochimica Acta*, supplement 4, volume 2. New York: Pergamon Press, 1973.
- Fireman, E. L., and F. Steinbrunn. "Radiochemical Measurements of Muons Underground." Pages 1729-1733 in *13th International Cosmic Ray Conference*, volume 1. Denver, Colorado: University of Denver, 1973.



- Fisher, R. R., P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, J. E. Vernazza, and G. L. Withbroe. "Surge Observations from ATM/Skylab." Presented at the Fifty-Fifth Annual Meeting of the American Geophysical Union, Washington, D. C., April 1974; abstract in *Transactions, American Geophysical Union*, volume 55 (1974), page 408.
- Forman, W., and W. Liller. "Optical Studies of UHURU Sources. V. A Prime Candidate for the 'Transient' X-Ray Source 2U 1543-47." *Astrophysical Journal (Letters)*, volume 183 (1973), pages L117-L119.
- Forti, G. "A Determination of Meteor Mass Distribution from Meteor Echoes." Pages 9-12 in C. L. Hemenway, P. M. Millman, and A. F. Cook, editors, *Evolutionary and Physical Properties of Meteoroids, Proceedings of the International Astronomical Union's Colloquium No. 13*. NASA SP-319, 1973.
- Foukal, P. K., M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, J. E. Vernazza, and G. L. Withbroe. "A Study of the Active Region McMath 12417 with the Harvard ATM EUV Spectrometer." Presented at the 141st Meeting of the American Astronomical Society, Tucson, Arizona, December 1973; abstract in *Bulletin of the American Astronomical Society*, volume 5 (1973), pages 432-433.
- Franklin, F. A. "The Structure of Saturn's Rings Based on Optical and Dynamical Considerations." Presented at the National Aeronautics and Space Administration Workshop on Saturn's Rings, Jet Propulsion Laboratory, Pasadena, California, August 1973.
- Gaposchkin, E. M. "Literal Algebra for Satellite Dynamics." Presented at the 17th International COSPAR Meeting, São Paulo, Brazil, June 1974.
- Garton, W. R. S., E. M. Reeves, F. S. Tomkins, and B. Ercoli. "Rydberg Series and Autoionization Resonances in the Sc I Absorption Spectrum." *Proceedings of the Royal Society of London*, volume 333 (1973), pages 1-16.
- Gerdes, C., C. Y. Fan, and T. C. Weekes. "The Primary Cosmic Ray Spectrum from  $2 \times 10^{11}$  ev to  $10^{15}$  ev." Pages 219-224 in *13th International Cosmic Ray Conference*, volume 1. Denver, Colorado: University of Denver, 1973.
- Giacconi, R. "Binary X-Ray Sources." Presented at the International Astronomical Union Symposium No. 64, Gravitational Radiation and Gravitational Collapse, Warsaw, Poland, September 1973.
- . "Progress in X-Ray Astronomy." *Physics Today*, volume 26, number 5 (1973), pages 38-47.
- . "Observational Results on Compact Galactic X-Ray Sources." Presented at the 16th International Solvay Congress on Physics, Brussels, Belgium, September 1973.
- Giacconi, R., H. Gursky, E. Kellogg, R. Levinson, E. Schreier, and H. Tananbaum. "Further X-Ray Observations of Hercules X-1 from UHURU." *Astrophysical Journal*, volume 184 (1973), pages 227-236.
- Giacconi, R., S. Murray, H. Gursky, E. Kellogg, E. Schreier, T. Matilsky, D. Koch, and H. Tananbaum. "The Third UHURU Catalog of X-Ray Sources." *Astrophysical Journal Supplement Number 237*, volume 27 (1974), pages 37-64.
- Gingerich, O. "From Copernicus to Kepler: Heliocentrism as Model and as Reality." *Proceedings of the American Philosophical Society*, volume 117 (1973), pages 513-522.
- . "Copernicus and Tycho." *Scientific American*, volume 229 (1973), pages 86-101.
- . "History of Astronomy (Report of IAU Commission No. 41)." *Transactions of the International Astronomical Union*, volume XVA (1973), pages 639-646.



- . "A Fresh Look at Copernicus." Pages 154-178 in R. M. Hutchins, M. J. Adler, and J. Van Doren, editors, *The Great Ideas Today* 1973. Chicago, Illinois: Encyclopaedia Britannica, Inc., 1973.
- . "H. Levitt." Pages 105-106 in *Dictionary of Scientific Biography*, volume 8. New York: Scribner's, 1973.
- . "A. C. Maury." Pages 194-195 in *Dictionary of Scientific Biography*, volume 9. New York: Scribner's, 1974.
- . "P. Mechain." Pages 250-252 in *Dictionary of Scientific Biography*, volume 9. New York: Scribner's, 1974.
- . "C. Messier." Pages 329-331 in *Dictionary of Scientific Biography*, volume 9. New York: Scribner's, 1974.
- . "Astronomical Maps." Pages 223-232 in *Encyclopaedia Britannica*, volume 2. Chicago, Illinois: Encyclopaedia Britannica, Inc., 1974.
- . "Harlow Shapley: Twentieth-Century Copernicus?" *Harvard Magazine*, volume 76, number 9 (1974), pages 18-23.
- Goad, L. E., and E. J. Chaisson. "Observations of Radio-Recombination Lines in Planetary Nebulae." *Mémoires Société Royale des Sciences de Liège*, series 6, volume V (1973), pages 115-119.
- Golub, L., A. S. Krieger, J. K. Silk, and G. S. Vaiana. "Time Variations of Solar X-Ray Bright Points." Presented at the International Astronomical Union/COSPAR Symposium No. 68, Solar Gamma X-Ray and EUV Radiation, Buenos Aires, Argentina, June 1974.
- Gorenstein, P., P. Bjorkholm, B. Harris, and F. R. Harnden, Jr. "Soft X-Ray Flux of the Coma Cluster of Galaxies." *Astrophysical Journal (Letters)*, volume 183 (1973), pages L57-L61.
- Grindlay, J. E., and G. G. Fazio. "Cosmic Gamma-Ray Bursts from Relativistic Dust Grains." Pages 296-308 in I. B. Strong, editor, *Proceedings of the Conference on Transient Cosmic Gamma- and X-Ray Sources* (LA-5505-C). Los Alamos, New Mexico: Los Alamos Scientific Laboratory, 1974.
- . "Cosmic Gamma-Ray Bursts from Relativistic Dust Grains." *Astrophysical Journal (Letters)*, volume 187 (1974), pages L93-L96.
- Grindlay, J. E., R. Hanbury Brown, J. Davis, and L. Allen. "First Results of a Southern Hemisphere Search for Gamma Ray Sources at  $E_\gamma \approx 3 \times 10^{11}$  eV." Pages 439-444 in *13th International Cosmic Ray Conference*, volume 1. Denver, Colorado: University of Denver, 1973.
- Grindlay, J. E., and Helmken, H. "Cosmic Ray Composition at  $>10^{12}$  eV from Muon/Electron Ratios in EAS." Pages 202-207 in *13th International Cosmic Ray Conference*, volume 1. Denver, Colorado: University of Denver, 1973.
- Grindlay, J. E., H. F. Helmken, R. Hanbury Brown, J. Davis, and L. R. Allen. "Observations of Southern Sky Gamma Ray Sources at  $E_\gamma \approx 3 \times 10^{11}$  eV." Presented at the 8th ESLAB Symposium, Frascati, Italy, June 1974.
- Grindlay, J. E., H. F. Helmken, and T. C. Weekes. "Observations of NP 0532 at  $10^{11}$ - $10^{12}$  eV Gamma Ray Energies." Presented at the 8th ESLAB Symposium, Frascati, Italy, June 1974.
- Grindlay, J. E., H. F. Helmken, T. C. Weekes, G. G. Fazio, and F. Boley. "Gamma-Ray Observations at  $E_\gamma > 5 \times 10^{11}$  eV of the Pulsars NP 0532 and CP 0950." Pages 36-40 in *13th International Cosmic Ray Conference*, volume 1. Denver, Colorado: University of Denver, 1973.
- Gurman, J. B., G. L. Withbroe, and J. W. Harvey. "A Comparison of EUV Spectroheliograms and Photospheric Magnetograms." *Solar Physics*, volume 34 (1974), pages 105-111.
- Gursky, H. "X-Ray Astronomy—A New View of the Sky from Space." *The Science Teacher*, volume 40, number 3 (1973), pages 32-35.

- . "The X-Ray Emission from Rich Clusters of Galaxies." *Publications of the Astronomical Society of the Pacific*, volume 85 (1973), pages 493-502.
- . "Neutron Stars and Black Holes." Presented at the Astronomical Society of the Pacific Meeting, San Francisco, California, February 1974.
- . "Observation of Galactic X-Ray Sources." Pages 291-341 in C. DeWitt and B. S. DeWitt, editors, *Black Holes*. New York: Gordon & Breach, Science Publishers, Inc., 1973.
- Gursky, H., and E. Schreier. "The Galactic X-Ray Sources." Presented at the American Association for the Advancement of Science Symposium on Black Holes and Neutron Stars, San Francisco, California, February 1974.
- Gursky, H., and D. Schwartz. "Deductions of the X-Ray Emissivity of the Universe from Observations of the Diffuse X-Ray Background." Presented at the International Astronomical Union Symposium No. 63, Confrontation between Cosmological Theories and Observational Data, Krakow, Poland, September 1973.
- Hallam, M., and A. H. Marcus. "Stochastic Coalescence Model for Terrestrial Planetary Accretion." *Icarus*, volume 21 (1974), pages 66-85.
- Haramundanis, K. "Interstellar Extinction in the Ultraviolet from Emission Stars." *Astrophysical Journal (Letters)*, volume 185 (1973), pages L87-L88.
- Harvey, P. M., I. Gatley, M. W. Werner, J. H. Elias, N. J. Evans II, B. Zuckerman, G. Morris, T. Sato, and M. M. Litvak. "Dust and Gas in the Orion Molecular Cloud: Observations of 1-Millimeter Continuum and 2-Centimeter  $\text{H}_2\text{CO}$  Emission." *Astrophysical Journal (Letters)*, volume 189 (1974), pages L87-L91.
- Hawkins, G. S. "Prehistoric Astronomy." *Bulletin of the Atomic Scientists*, volume 29 (1973), pages 58-64.
- . "Micrometeorite and Cosmic Dust Data near the Earth's Orbit." Pages 1159-1164 in M. J. Rycroft and S. K. Runcorn, editors, *Space Research XIII*. Berlin: Akademie-Verlag, 1973.
- . "Astro-Archaeology—Scientific Knowledge Shown by Prehistoric Man." Pages F60-F62 in *Pears Cyclopaedia*, 82nd edition. New York: Schocken Books, Inc., 1973.
- . "James Bradley, a Biography." In *Encyclopaedia Britannica*. Chicago, Illinois: Encyclopaedia Britannica, Inc., 1973.
- Hayes, D. S., D. W. Latham, and S. H. Hayes. "The Absolute Flux of Vega in the Near Infrared" (abstract). *Bulletin of the American Astronomical Society*, volume 5 (1973), page 347.
- Hegyi, D. J., W. A. Traub, and N. P. Carleton. "Cosmic Background Radiation at 1.32 Millimeters." *Astrophysical Journal*, volume 190 (1974), pages 543-544.
- Helmken, H. F., G. G. Fazio, E. O'Mongain, and T. C. Weekes. "A Three-Year Search for Periodic Gamma-Ray Emission in the  $10^{11}$ – $10^{12}$  eV Energy Region from NP 0532." *Astrophysical Journal*, volume 184 (1973), pages 245-250.
- Helmken, H. F., P. Gorenstein, and H. Gursky. "Hard X-Ray Burst Detector with High Angular Resolution." Pages 253-259 in I. B. Strong, editor, *Proceedings of the Conference on Transient Cosmic Gamma- and X-Ray Sources (LA-5505-C)*. Los Alamos, New Mexico: Los Alamos Scientific Laboratory, 1974.
- Helmken, H., and J. Hoffman. "Pulsed Gamma-Ray Flux from NP 0532 at  $E \geq 15$  MeV." Pages 31-35 in *13th International Cosmic Ray Conference*, volume 1. Denver, Colorado: University of Denver, 1973.
- Helmken, H. F., T. C. Weekes, and G. G. Fazio. "Search for  $10^{11}$ -eV Periodic Gamma-Ray Emission from NP 0532." Pages 48-50 in *13th International*



- Cosmic Ray Conference*, volume 1. Denver, Colorado: University of Denver, 1973.
- Hemenway, C. L., P. M. Millman, and A. F. Cook, editors. *Evolutionary and Physical Properties of Meteoroids, Proceedings of the International Astronomical Union's Colloquium No. 13*. NASA SP-319, 1973.
- Hodge, P. W. "The Recent Evolutionary History of the Cluster System of the Large Magellanic Cloud." *Astronomical Journal*, volume 78 (1973), pages 807-810.
- . "A Second Survey of H II Regions in Galaxies." *Astrophysical Journal Supplement Number 239*, volume 27 (1974), pages 113-120.
- Hodge, P. W., and P. Flower. "A Color-Magnitude Diagram for the Rich Cluster NGC 2164 in the Large Magellanic Cloud." *Astrophysical Journal*, volume 185 (1973), pages 829-841.
- Hodge, P. W., and D. W. Smith. "The Structure of the Fornax Dwarf Galaxy." *Astrophysical Journal*, volume 188 (1974), pages 19-25.
- Hodge, P. W., and F. W. Wright. "Particles around the Boxhole Meteorite Crater." *Meteoritics*, volume 8 (1973), pages 315-320.
- . "The Transparency of the Small Magellanic Cloud." Presented at the 141st Meeting of the American Astronomical Society, Tucson, Arizona, December 1973; abstract in *Bulletin of the American Astronomical Society*, volume 5 (1973), page 448.
- Holt, S. S., E. A. Boldt, P. J. Serlemitsos, S. S. Murray, R. Giacconi, E. M. Kellogg, and T. A. Matilsky. "On the Nature of the Unidentified High Latitude UHURU Sources." *Astrophysical Journal (Letters)*, volume 188 (1974), pages L97-L101.
- Huber, M. C. E., A. K. Dupree, L. Goldberg, R. W. Noyes, W. H. Parkinson, E. M. Reeves, and G. L. Withbroe. "The Harvard Experiment on OSO-6: Instrumentation, Calibration, Operation, and Description of Observations." *Astrophysical Journal*, volume 183 (1973), pages 291-312.
- Huber, M. C. E., P. V. Foukal, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, J. E. Vernazza, and G. L. Withbroe. "Observations of a Coronal Hole Boundary in the Extreme Ultraviolet." Presented at the 141st Meeting of the American Astronomical Society, Tucson, Arizona, December 1973; abstract in *Bulletin of the American Astronomical Society*, volume 5 (1973), page 446.
- Huber, M. C. E., E. M. Reeves, and J. G. Timothy. "Photometric Calibration of an Extreme-Ultraviolet Spectroheliometer for the Skylab Mission." Pages 33-54 in B. J. Thompson and R. R. Shannon, editors, *Space Optics, Proceedings of the Ninth International Congress of the International Commission for Optics*. Washington, D.C.: National Academy of Sciences, 1974.
- Jacchia, L. G. "Variations in Thermospheric Composition: A Model Based on Mass-Spectrometer and Satellite-Drag Data." *Journal of Geophysical Research*, volume 79 (1974), pages 1923-1927.
- . "New Models of the Thermosphere and Exosphere." Presented at the 17th International COSPAR Meeting, São Paulo, Brazil, June 1974.
- Jacchia, L. G., I. G. Campbell, and J. W. Slowey. "A Study of the Diurnal Variation in the Thermosphere as Derived by Satellite Data." *Planetary and Space Science*, volume 21 (1973), pages 1825-1834.
- Jacchia, L. G., and J. W. Slowey. "A Study of the Variations in the Thermosphere Related to Solar Activity." Pages 343-348 in M. J. Rycroft and S. K. Runcorn, editors, *Space Research XIII*. Berlin: Akademie-Verlag, 1973.
- Jacchia, L. G., J. W. Slowey, and I. G. Campbell. "An Analysis of the Solar-Activity Effects in the Upper Atmosphere." *Planetary and Space Science*, volume 21 (1973), pages 1835-1842.



- Kahler, S., A. S. Krieger, J. K. Silk, R. Simon, A. F. Timothy, and G. S. Vaiana. "Studies of the Dynamic Structure and Spectra of Solar X-Ray Flares." Presented at the International Astronomical Union/COSPAR Symposium No. 68, Solar Gamma X-Ray and EUV Radiation, Buenos Aires, Argentina, June 1974.
- Kalkofen, W. "Complete Linearization of the Integral Equations in Radiative Transfer." *Astrophysical Journal*, volume 188 (1974), pages 105-119.
- . "A Comparison of Differential and Integral Equations of Radiative Transfer." *Journal of Quantitative and Spectroscopic Radiative Transfer*, volume 14 (1974), pages 309-316.
- Kellogg, E., S. Murray, R. Giacconi, H. Tananbaum, and H. Gursky. "Clusters of Galaxies with a Wide Range of X-Ray Luminosities." *Astrophysical Journal (Letters)*, volume 185 (1973), pages L13-L16.
- Kellogg, E., H. Tananbaum, F. R. Harnden, Jr., H. Gursky, R. Giacconi, and J. Grindlay. "The X-ray Structure of the Vela X Region Observed from UHURU." *Astrophysical Journal*, volume 183 (1973), pages 935-940.
- Kleinmann, D. E., and E. L. Wright. "A New Infrared Source in M17." *Astrophysical Journal (Letters)*, volume 185 (1973), pages L131-L133.
- Kohl, J. L., and W. H. Parkinson. "Measurement of the Neutral-Aluminum Photoionization Cross-Section and Parameters of the  $3p\ ^2P^0 - 3s3p^2\ ^2S_{1/2}$  Autoionization Doublet." *Astrophysical Journal*, volume 184 (1973), pages 641-652.
- . "Absolute Intensity Calibration of a High-Resolution Rocket Spectrometer." Pages 511-521 in B. J. Thompson and R. R. Shannon, editors, *Space Optics, Proceedings of the Ninth International Congress of the International Commission for Optics*. Washington, D.C.: National Academy of Sciences, 1974.
- Kornblum, J. J., E. L. Fireman, M. Levine, and A. Aronson. "Neutrons in the Moon." Pages 2172-2182 in *Proceedings of the Fourth Lunar Science Conference, Geochimica et Cosmochimica Acta*, supplement 4, volume 2. New York: Pergamon Press, 1973.
- Krieger, A. S., R. C. Chase, M. Gerassimenko, S. Kahler, A. F. Timothy, and G. S. Vaiana. "Time Variations in Coronal Active Regions Structures." Presented at the International Astronomical Union/COSPAR Symposium No. 68, Solar Gamma X-Ray and EUV Radiation, Buenos Aires, Argentina, June 1974.
- Kurucz, R. L. "Stellar Spectral Synthesis in the Ultraviolet." *Astrophysical Journal (Letters)*, volume 188 (1974), pages L21-L22.
- . "A Preliminary Theoretical Line-Blanketed Model Solar Photosphere." *Solar Physics*, volume 34 (1974), pages 17-23.
- Lada, C. J., and E. J. Chaisson. "Microwave Spectroscopic Mapping of Gaseous Nebulae. II. Observations of Hydrogen in NGC 7538." *Astrophysical Journal*, volume 183 (1973), pages 479-489.
- Lada, C. J., D. F. Dickinson, and H. Penfield. "Discovery and CO Observations of a New Molecular Cloud near M17." *Astrophysical Journal (Letters)*, volume 189 (1974), pages L35-L37.
- Latham, D. W. "Report on the Cambridge Meeting of the AAS Working Group on Photographic Materials in Astronomy, Part III." *American Astronomical Society Photo-Bulletin*, volume 5, number 1 (1973), pages 3-6.
- . "Detective Performance of Photographic Plates." Pages 221-235 in N. Carleton, editor, *Astrophysics, Part A: Optical and Infrared*, volume 12 in *Methods of Experimental Physics*. New York: Academic Press, 1974.
- Latham, D. W., and W. C. Miller. "Report on the Ann Arbor Meeting of the AAS Working Group on Photographic Materials in Astronomy, Part I." *American Astronomical Society Photo-Bulletin*, volume 5, number 1 (1973), pages 7-17.

- Latham, D. W., and W. Rice. "Detective Quantum Efficiency of Kodak Special Plate, Type 127-02, Relative to Kodak Spectroscopic Plate, Type Ila-F." *American Astronomical Society Photo-Bulletin*, volume 5, number 1 (1973), pages 20-21.
- Laughlin, C., and A. Dalgarno. "Nuclear-Charge-Expansion Method for  $(2s^a 2p^b - 2s^{a-1} 2p^{b+1})$  Transitions." *Physical Review A*, volume 8 (1973), pages 39-46.
- Laughlin, C., and G. A. Victor. "Model Potential Calculations for Two-Valence Electron Systems." *Atomic Physics*, volume 3 (1973), pages 247-255.
- Lea, S. M., J. Silk, E. Kellogg, and S. Murray. "Thermal-Bremsstrahlung Interpretation of Cluster X-Ray Sources." *Astrophysical Journal (Letters)*, volume 184 (1973), pages L105-L111.
- Lecar, M. "Computer Simulation of Stellar Systems." Pages 143-147 in S. W. McCuskey, editor, *Structure and Dynamics of the Galactic System, A Report*. East Cleveland, Ohio: Warner and Swasey Observatory, 1973.
- Lecar, M., and F. A. Franklin. "On the Original Distribution of the Asteroids. I." *Icarus*, volume 20 (1973), pages 422-436.
- Lecar, M., R. Loeser, and J. Cherniack. "Numerical Integration of Gravitational N-Body Systems with the Use of Explicit Taylor Series." Pages 451-470 in D. Bettis, editor, *Numerical Solution of Ordinary Differential Equations, Lecture Notes in Mathematics No. 362*. New York: Springer-Verlag, 1974.
- Lehr, C. G. "The Statistics of Laser Returns from Cube-Corner Arrays on Satellites." *Smithsonian Astrophysical Observatory Laser Report*, number 5, 13 pages, 1973.
- . "Laser Tracking Systems." Pages 1-52 in M. Ross, editor, *Laser Applications*, volume 2. New York: Academic Press, 1974.
- Lejeune, G., and A. Dalgarno. "The Red Line of Atomic Oxygen at Twilight." *Planetary and Space Science*, volume 21 (1973), pages 1937-1943.
- Lester, J. B. "The ON9 V Star HD 201345." *Astrophysical Journal*, volume 185 (1973), pages 253-264.
- Levitte, D., J. Columba, and P. A. Mohr. "Reconnaissance Geology of the Amaro Horst, Southern Ethiopian Rift." *Bulletin of the Geological Society of America*, volume 85 (1974), pages 417-422.
- Levy, H. "Tropospheric Budgets for Methane, Carbon Monoxide, and Related Species." *Journal of Geophysical Research*, volume 78 (1973), pages 5325-5332.
- Litvak, M. M. "Common Molecular Masers in Astronomy." Page 15 in *Digest of Technical Papers, VIII International Quantum Electronics Conference*. New York: Institute of Electrical and Electronic Engineers, 1974.
- Marsden, B. G. "The Next Return of the Comet of the Perseid Meteors." *Astronomical Journal*, volume 78 (1973), pages 654-662.
- . "Report of the Central Bureau for Astronomical Telegrams (Commission No. 6)." *Transactions of the International Astronomical Union*, volume XVA (1973), pages 15-17.
- . "Daniel Kirkwood." Pages 384-387 in *Dictionary of Scientific Biography*, volume 7. New York: Scribner's, 1973.
- . "The Recovery of Apollo." *Sky and Telescope*, volume 46 (1973), pages 155-158.
- . "Comets in 1972." *Quarterly Journal of the Royal Astronomical Society*, volume 14 (1973), pages 389-406.
- . "Annual Report of the Central Bureau for Astronomical Telegrams." *International Astronomical Union Information Bulletin*, number 30 (1973), pages 8-10.



- . "Percival Lowell." Pages 520-523 in *Dictionary of Scientific Biography*, volume 8. New York: Scribner's, 1974.
- . "Cometary Motions." *Celestial Mechanics*, volume 9 (1974), pages 303-314.
- Marsden, B. G., and Z. Sekanina. "On the Distribution of 'Original' Orbits of Comets of Large Perihelion Distance" (abstract). *Bulletin of the American Astronomical Society*, volume 5 (1973), page 361.
- . "On the Distribution of 'Original' Orbits of Comets of Large Perihelion Distance." *Astronomical Journal*, volume 78 (1973), pages 1118-1124.
- . "Comets and Nongravitational Forces. VI. Periodic Comet Encke 1786-1971." *Astronomical Journal*, volume 79 (1974), pages 413-419.
- Marvin, U. B. "The Moon after Apollo." *Technology Review*, July/August (1973), pages 12-23.
- . "Ti-Rich Lunar Spherule Aggregates" (abstract). *Programs of the 1973 Annual Meeting of the Geological Society of America*, volume 5 (1973), pages 727-728.
- . *Continental Drift, the Evolution of a Concept*. Washington, D.C.: Smithsonian Press, 1973.
- (with Apollo 17 Preliminary Examination Team). "Apollo 17 Lunar Samples: Chemical and Petrographic Description." *Science*, volume 182 (1973), pages 659-672.
- . "Continental Drift." In *Encyclopaedia Britannica*, volume 3. Chicago, Illinois: Encyclopaedia Britannica, Inc., 1974.
- . "La Lune après Apollo." *La Recherche*, April (1974), pages 337-346.
- . "Morphology and Surface Mapping." Pages 9-33 (plus Appendices A and B, pages 161-191) in *Interdisciplinary Studies of Samples from Boulder 1, Station 2, Apollo 17*. Compilation of the Studies of the Consortium Indomitable, volume 1. 1974.
- Marvin, U. B., and D. B. Stoesser. "The Civet Cat Clast, a New Variety of Lunar Norite." Presented at the Fifty-Fifth Annual Meeting of the American Geophysical Union, Washington, D.C., April 1974; abstract in *Transactions, American Geophysical Union*, volume 55 (1974), pages 323-324.
- Marvin, U. B., J. A. Wood, and J. Bower. "Apollo 17 Stratigraphy: Clues from a Boulder." Presented at the 36th Annual Meeting of the Meteoritical Society, Davos, Switzerland, August 1973; abstract in *Meteoritics*, volume 8 (1973), pages 412-413.
- Mazurek, T. J., J. W. Truran, and A. G. W. Cameron. "Electron Capture in Carbon Dwarf Supernovae." *Astrophysics and Space Science*, volume 27 (1974), pages 261-291.
- McCrosky, R. E. "Cometary Debris." Presented at The Dusty Universe Symposium honoring Dr. Fred L. Whipple, Smithsonian Astrophysical Observatory, Cambridge, Massachusetts, October 1973.
- Megrue, G. H. "Distribution of Gases within Apollo 15 Samples: Implications for the Incorporation of Gases within Solid Bodies of the Solar System." *Journal of Geophysical Research*, volume 78 (1973), pages 4875-4883.
- Menzel, D. H. "Concluding Remarks." *Mémoires Société Royale des Sciences de Liège*, series 6, volume V (1973), pages 491-495.
- . "Science Questions Answered by DHM." *Highlights for Children*, volume 28, number 6 (1973), page 22.
- . "Copernicus." *Highlights for Children*, volume 28, number 11 (1973), pages 10-12.
- . "The Year of the Great Comet." *Highlights for Children*, volume 29, number 1 (1974), pages 38-39.



- Menzel, D. H., and W. W. Salisbury. "Pulsar Radiation as Magnetic-Dipole Synchrotron Emission." *Mémoires Société Royale des Sciences de Liège*, series 6, volume V (1973), page 219.
- Mertz, L. N. "The Gap at One Second in the Period Distribution of Pulsars" (abstract). *Bulletin of the American Astronomical Society*, volume 5 (1973), pages 321.
- . "Swept Frequency Excitation for Fourier Transform Spectrometry" (Letter). *Journal of Physics E: Scientific Instruments*, volume 7 (1974), page 228.
- . "Rapid Fluctuations of Large Volume Astronomical Sources." *Nature*, volume 247 (1974), page 324.
- . "Focusing Behavior of Fresnel Zone Plates Having Various Central Phases," *Optics Communications*, volume 11 (1974), pages 148-149.
- Millman, P. M., A. F. Cook, and C. L. Hemenway. "Image-Orthicon Spectra of Geminids in 1969." Pages 147-151 in C. L. Hemenway, P. M. Millman, and A. F. Cook, editors, *Evolutionary and Physical Properties of Meteoroids, Proceedings of the International Astronomical Union's Colloquium No. 13*. NASA SP-319, 1973.
- Mitler, H. E. "The Cambridge Cosmochemistry Symposium." *Icarus*, volume 20 (1973), pages 54-71.
- Mohr, P. A. "Comments on 'Tectonic History of the Ethiopian Rift Deduced by K-Ar Ages and Paleomagnetic Measures of Basaltic Dikes,' by G. H. Megrue, E. Norton and D. W. Strangway." *Journal of Geophysical Research*, volume 78 (1973), pages 720-722.
- . "Evolution of Danakil Depression (Afar, Ethiopia) in Light of Radiometric Age Determinations: A Discussion." *Journal of Geology*, volume 81 (1973), pages 747-749.
- . "Structural Geology of the African Rift System: Summary of New Data from ERTS-1 Imagery." Presented at the Third ERTS Symposium, Washington, D.C., December 1973.
- . "Rift Valleys." Pages 841-846 in *Encyclopaedia Britannica*, volume 15. Chicago, Illinois: Encyclopaedia Britannica, Inc., 1974.
- . "Structural Setting and Evolution of Afar." Presented at the Symposium on the Afar Region of Ethiopia and Related Rift Problems, Bad Bergzabern, Germany, April 1974.
- . "ENE-Trending Lineaments of the African Rift System." Presented at the First International Conference on The New Basement Tectonics, Salt Lake City, Utah, June 1974.
- Moran, J. M. "Some Characteristics of an Operational System for Measuring UT 1 Using Very Long Baseline Interferometry." Pages 73-82 in M. J. Rycroft and S. K. Runcorn, editors, *Space Research XIII*. Berlin: Akademie-Verlag, 1973.
- . "Spectral-Line Analysis of Very Long-Baseline Interferometric Data." *Proceedings of the Institute of Electrical and Electronic Engineers*, volume 61 (1973), pages 1236-1242.
- . "Geodetic and Astrometric Results of Very Long-Baseline Interferometric Measurements of Natural Radio Sources." Presented at the 17th International COSPAR Meeting, São Paulo, Brazil, June 1974.
- Moran, J. M., G. D. Papadopoulos, B. F. Burke, K. Y. Lo, P. R. Schwartz, D. L. Thacker, K. J. Johnston, S. H. Knowles, A. C. Reisz, and I. I. Shapiro. "Very Long-Baseline Interferometric Observations of the H<sub>2</sub>O Sources in W49N, W3(OH), Orion A, and VY Canis Majoris." *Astrophysical Journal*, volume 185 (1973), pages 535-567.
- Morgan, J. W., U. Krahenbuhl, R. Ganapathy, E. Anders, and U. B. Marvin. "Trace Element Abundances and Petrology of Separates from Apollo 15.

- Soils." Pages 1379-1398 in *Proceedings of the Fourth Lunar Science Conference, Geochimica et Cosmochimica Acta*, supplement 4, volume 2. New York: Pergamon Press, 1973.
- Murphy, R. E., and K. Aksnes. "Polar Cap on Europa." *Nature*, volume 244 (1973), pages 559-560.
- Noyes, R. W., P. V. Foukal, M. C. E. Huber, E. M. Reeves, E. J. Schmahl, J. G. Timothy, J. E. Vernazza, and G. L. Withbroe. "ATM Observations of Solar Flares in the Extreme Ultraviolet." Presented at the 141st Meeting of the American Astronomical Society, Tucson, Arizona, December 1973; abstract in *Bulletin of the American Astronomical Society*, volume 5 (1973), page 433.
- . "ATM Observations of Solar Flares in the Extreme Ultraviolet." Presented at the Fifty-Fifth Annual Meeting of the American Geophysical Union, Washington, D.C., April 1974; abstract in *Transactions, American Geophysical Union*, volume 55 (1974), page 408.
- Oppenheimer, M., and A. Dalgarno. "The Chemistry of Sulphur in Interstellar Clouds." *Astrophysical Journal*, volume 187 (1974), pages 231-235.
- Papaliolios, C., and P. Horowitz. "Results of a Search for Optical Pulsars. II. Extragalactic Supernovae." *Astrophysical Journal*, volume 183 (1973), pages 233-235.
- Peterson, L. E., D. A. Schwartz, and J. C. Ling. "Spectrum of Atmospheric Gamma Rays to 10 Mev at Latitude 40°." *Journal of Geophysical Research*, volume 78 (1973), pages 7942-7958.
- Porter, N. A., T. Delaney, and T. C. Weekes. "Observations of the Crab Pulsar with a Wide-Angle Atmospheric Cherenkov System." Presented at the 8th ESLAB Symposium, Frascati, Italy, June 1974.
- Radford, H. E., K. M. Evenson, and C. J. Howard. "HO<sub>2</sub> Detected by Laser Magnetic Resonance." *Journal of Chemical Physics*, volume 60 (1974), pages 3178-3183.
- Reeves, E. M. "Solar Physics Investigations on Skylab." Presented at the 142nd Meeting of the American Astronomical Society, Lincoln, Nebraska, March 1974; abstract in *Bulletin of the American Astronomical Society*, volume 6 (1974), pages 225-226.
- . "Payload Operations Presented to the Crew Functions (Shuttle) Workshop." Presented at Johnson Space Center, Houston, Texas, April 1974.
- . "Solar Perplexities: A View from Skylab." *Harvard Today*, volume 17 (1974), pages 8-9.
- Reeves, E. M., R. R. Fisher, P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. J. Schmahl, J. G. Timothy, J. E. Vernazza, and G. L. Withbroe. "EUV Observations of Coronal Holes with the Harvard ATM Experiment." Presented at the Fifty-Fifth Annual Meeting of the American Geophysical Union, Washington, D.C., April 1974; abstract in *Transactions, American Geophysical Union*, volume 55 (1974), page 408.
- Reeves, E. M., P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. J. Schmahl, J. G. Timothy, J. E. Vernazza, and G. L. Withbroe. "Solar EUV Photoelectric Observations from Skylab." Presented at the XVth General Meeting of the International Astronomical Union, Sydney, Australia, August 1973.
- . "Preliminary Solar Extreme Ultraviolet Observations from the ATM with the Harvard Instrument." Presented at the 141st Meeting of the American Astronomical Society, Tucson, Arizona, December 1973; abstract in *Bulletin of the American Astronomical Society*, volume 5 (1973), page 419.
- . "Observations of the Chromospheric Network: Initial Results from Apollo Telescope Mount." *Astrophysical Journal (Letters)*, volume 188 (1974), pages L27-L29.



- Reeves, E. M., R. W. Noyes, and G. L. Withbroe. "The Scientific Instruments." Pages 21-27 in *Skylab and the Sun*. Washington, D.C.: National Aeronautics and Space Administration, 1973.
- . "The Solar Joint-Observing Program." Pages 30-34 in *Skylab and the Sun*. Washington, D.C.: National Aeronautics and Space Administration, 1973.
- . "Coordinated Observing Program." Page 36 in *Skylab and the Sun*. Washington, D.C.: National Aeronautics and Space Administration, 1973.
- Reeves, E. M., J. G. Timothy, and M. C. E. Huber. "The Photoelectric Spectroheliometer on ATM." Presented at the Society of Photo-Optical Instrumentation Engineers Seminar-in-Depth on Instrumentation and Astronomy — II, Tucson, Arizona, March 1974.
- Reisz, A. C., I. I. Shapiro, J. M. Moran, G. D. Papadopoulos, B. F. Burke, K. Y. Lo, and P. R. Schwartz. "W3(OH): Accurate Relative Positions of Water-Vapor Emission Features." *Astrophysical Journal*, volume 186 (1973), pages 537-544.
- Rieke, G. H., F. J. Low, and D. E. Kleinmann. "High-Resolution Maps of the Kleinmann-Low Nebula in Orion." *Astrophysical Journal (Letters)*, volume 186 (1973), pages L7-L11.
- Schaefer, M. M., G. B. Rybicki, and M. Lecar. "A Method of Computing the Gravitational Field of an Axially Symmetric Flat Galaxy." *Astrophysics and Space Science*, volume 25 (1973), pages 357-372.
- Schild, R. E. "A Far-Ultraviolet Flux Difference between Hyades and Pleiades Stars." Pages 29-33 in B. Hauck and B. Westerlund, editors, *Problems of Calibration of Absolute Magnitudes and Temperatures of Stars, Proceedings of the International Astronomical Union Symposium No. 54*. Dordrecht, Holland: D. Reidel Publishing Company, 1973.
- Schild, R. E., F. Chaffee, J. A. Frogel, and S. E. Persson. "The Nature of Infrared Excesses in Extreme Be Stars." *Astrophysical Journal*, volume 190 (1974), pages 73-83.
- Schild, R., J. B. Oke, and L. Searle. "The Energy Distribution of the Very Red Star in NGC 6231." *Astrophysical Journal*, volume 188 (1974), pages 71-74.
- Schmahl, E. J., P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, J. G. Timothy, J. E. Vernazza, and G. L. Withbroe. "Solar Prominences in the EUV as Observed from ATM." Presented at the 141st Meeting of the American Astronomical Society, Tucson, Arizona, December 1973; abstract in *Bulletin of the American Astronomical Society*, volume 5 (1973), page 432.
- Schreier, E. J. "Galactic X-Ray Sources." Pages 650-667 in H. H. Bingham, M. Davies, and G. R. Lynch, editors, *Proceedings of the 1973 Meeting of Division of Particles and Fields*. Berkeley, California: American Physical Society, 1973.
- . "Binary X-Ray Sources and the Observational Situation of Black Holes." Presented at the Lectures at the International School of Cosmology and Gravitation, Erice, Sicily, May 1974.
- Schwartz, D. "Geomagnetic Background Events Observed by UHURU." In S. Holt, editor, *Particle Contamination of Low Energy X-Ray Astronomy Experiments*. Goddard Space Flight Center Publication No. X-661-74-130, 1974.
- Schwartz, D., and H. Gursky. "The X-Ray Emissivity of the Universe: 2-200 keV." Pages 15-36 in F. Stecker and J. Trombka, editors, *Gamma-Ray Astrophysics*. NASA SP-339, 1973.
- Schwartz, D. A., and L. E. Peterson. "The Spectrum of Diffuse Cosmic X-Rays Observed by OSO-3 between 7 and 100 keV." *Astrophysical Journal*, volume 190 (1974), pages 297-303.
- Sekanina, Z. "Existence of Icy Comet Tails at Large Distances from the Sun." *Astrophysical Letters*, volume 14 (1973), pages 175-180.



- . "New Evidence for Interplanetary Boulders?" Pages 199-207 in C. L. Hemenway, P. M. Millman, and A. F. Cook, editors, *Evolutionary and Physical Properties of Meteoroids, Proceedings of the International Astronomical Union's Colloquium No. 13*. NASA SP-319, 1973.
- . "The Prediction of Anomalous Tails of Comets." *Sky and Telescope*, volume 47 (1974), pages 374-377.
- Silk, J. K., S. Kahler, A. S. Krieger, A. F. Timothy, G. S. Vaiana, and D. Webb. "Spatial and Spectral Observations of Two Solar X-Ray Flares." Presented at the Spatial ATM Session of the Open Meeting of the WG3 COSPAR Meeting, São Paulo, Brazil, June 1974.
- Sistla, G., G. Kojoian, and E. J. Chaisson. "Microwave Measurements of Planetary Nebulae." Presented at the 141st Meeting of the American Astronomical Society, Tucson, Arizona, December 1973; abstract in *Bulletin of the American Astronomical Society*, volume 5 (1973), page 424.
- Southworth, R. B. "Recombination in Radar Meteors." Pages 13-21 in C. L. Hemenway, P. M. Millman, and A. F. Cook, editors, *Evolutionary and Physical Properties of Meteoroids, Proceedings of the International Astronomical Union's Colloquium No. 13*. NASA SP-319, 1973.
- Steinbrunn, F., and E. L. Fireman. "<sup>39</sup>Ar Production Cross-Sections in Ti for Solar-Proton Effects in Lunar Surface Samples" (abstract). Pages 732-734 in *Lunar Science V*. Houston, Texas: Lunar Science Institute, 1974.
- Stephens, T. L., and A. Dalgarno. "Kinetic Energy in the Spontaneous Radiative Dissociation of Molecular Hydrogen." *Astrophysical Journal*, volume 186 (1973), pages 165-167.
- Stoesser, D. B., R. W. Wolfe, U. B. Marvin, J. A. Wood, and J. F. Bower. "Petrographic Studies of a Boulder from the South Massif" (abstract). Pages 743-745 in *Lunar Science V*. Houston, Texas: Lunar Science Institute, 1974.
- Stoesser, D. B., R. W. Wolfe, J. A. Wood, and U. B. Marvin. "Petrology." Pages 35-109 in *Interdisciplinary Studies of Samples from Boulder 1, Station 2, Apollo 17*. Compilation of the Studies of the Consortium Indomitabile, volume 1 (1974).
- Taylor, G. J., M. J. Drake, M. Hallam, U. B. Marvin, and J. A. Wood. "Apollo 16 Stratigraphy: The ANT Hills, the Cayley Plains and a Pre-Imbrian Regolith." Pages 553-568 in *Proceedings of the Fourth Lunar Science Conference, Geochimica et Cosmochimica Acta*, supplement 4, volume 1. New York: Pergamon Press, 1973.
- Timothy, J. G., P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. E. Vernazza, and G. L. Withbroe. "Preliminary Results from ATM: Observations of the Earth's Upper Atmosphere." Presented at the Fifty-Fifth Annual Meeting of the American Geophysical Union, Washington, D.C., April 1974; abstract in *Transactions, American Geophysical Union*, volume 55 (1974), page 372.
- . "Preliminary Results from ATM: The Structure of Solar EUV Bright Points." Presented at the 17th International COSPAR Meeting, São Paulo, Brazil, June 1974.
- . "Preliminary Results from ATM: Measurements of the Density of O<sub>2</sub> in the Earth's Upper Atmosphere." Presented at the 17th International COSPAR Meeting, São Paulo, Brazil, June 1974.
- Timothy, A. F., A. S. Krieger, R. Petrasso, J. K. Silk, and G. S. Vaiana. "Structure and Dynamics of the Quiet X-Ray Corona." Presented at the Spatial ATM Session of the Open Meeting of the WG3 COSPAR Meeting, São Paulo, Brazil, June 1974.
- Timothy, J. G., E. M. Reeves, and M. C. E. Huber. "The Photoelectric Spectroheliometer on ATM." Presented at the Society of Photo-Optical Instrumenta-

- tion Engineers Seminar-in-Depth on Instrumentation in Astronomy — II, Tucson, Arizona, March 1974.
- Traub, W. A., and N. P. Carleton. "Observations of O<sub>2</sub>, H<sub>2</sub>O, and HD in Planetary Atmospheres." Presented at the International Astronomical Union Symposium No. 65, Exploration of the Planetary System, Torun, Poland, September 1973.
- . "Detection of Interstellar Lithium." *Astrophysical Journal (Letters)*, volume 184 (1973), pages L11-L14.
- . "Observations of Spatial and Temporal Variations of the Jovian H<sub>2</sub> Quadrupole Lines." Presented at the Planetary Sciences Division Meeting of the American Astronomical Society, Palo Alto, California, April 1974.
- Traub, W. A., N. P. Carleton, and D. J. Hegyi. "Search for Deuterium in Orion and Detection of High-Velocity Features." *Astrophysical Journal (Letters)*, volume 190 (1974), pages L81-L84.
- Trauger, J. T., F. L. Roesler, N. P. Carleton, and W. A. Traub. "Observation of HD on Jupiter and the D/H Ratio." *Astrophysical Journal (Letters)*, volume 184 (1973), pages L137-L141.
- Vaiana, G. S. "Observations of the X-Ray Corona with S-054 X-Ray Telescope." Presented at the International Astronomical Union/COSPAR Symposium No. 68, Solar Gamma X-Ray and EUV Radiation, Buenos Aires, Argentina, June 1974.
- . "ATM X-Ray Telescope Results." Presented at the Spatial ATM Session of the Open Meeting of the WG3 COSPAR Meeting, São Paulo, Brazil, June 1974.
- Vaiana, G. S., J. M. Davis, R. Giacconi, A. S. Krieger, J. K. Silk, A. F. Timothy, and M. Zombeck. "X-Ray Observations of Characteristic Structures and Time Variations from the Solar Corona: Preliminary Results from Skylab." *Astrophysical Journal (Letters)*, volume 185 (1973), pages L47-L51.
- VanSpeybroeck, L., E. Kellogg, S. Murray, and S. Duckett. "Negative Affinity X-Ray Photocathodes." *Nuclear Science*, volume NS 21 (1974), pages 408-415.
- Vernazza, J. E., E. H. Avrett, and R. Loeser. "Structure of the Solar Chromosphere. I. Basic Computations and Summary of the Results." *Astrophysical Journal*, volume 184 (1973), pages 605-631.
- Vernazza, J. E., P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, and G. L. Withbroe. "ATM Observations of the Time Dependent Intensity Fluctuations in the Extreme Ultraviolet." Presented at the Solar Physics Division Meeting of the American Astronomical Society, Honolulu, Hawaii, January 1974; abstract in *Bulletin of the American Astronomical Society*, volume 6 (1974), page 296.
- . "ATM Measurements of EUV Intensity Fluctuations." Presented at the 17th International COSPAR Meeting, Buenos Aires, Argentina, June 1974.
- Vernazza, J. E., and G. L. Withbroe. "The Evolution of Solar Active Regions Based on 8.6 mm and Other Solar Observations." AFCRL Scientific Report No. 73-0643, 34 pages, 1973.
- Vessot, R. F. C. "A Gravitational Redshift Rocket Experiment." Presented at the University of Toronto Physics Department Colloquium, Toronto, Canada, April 1974.
- Vessot, R. F. C., and M. W. Levine. "Performance Data of Space and Ground Hydrogen Masers and Ionospheric Studies for High-Accuracy Comparisons between Space and Ground Clocks." Presented at the Twenty-Seventh Annual Frequency Control Symposium, Atlantic City, New Jersey, June 1974.
- Victor, G. A., and C. Laughlin. "Model Potential Calculations of Be I and Mg I Oscillator Strengths." *Nuclear Instruments and Methods*, volume 110 (1973), pages 189-192.



- Weeks, T. C. "A Survey of Gamma-Ray Sources in the Galactic Plane at Energies of  $10^{11}$  to  $10^{12}$  ev." Pages 446-449 in *13th International Cosmic Ray Conference*, volume 1. Denver, Colorado: University of Denver, 1973.
- Weekes, T. C., and G. H. Rieke. "The Atmospheric Cherenkov Technique for Gamma Ray Astronomy." Presented at the 8th ESLAB Symposium, Frascati, Italy, June 1974.
- Whipple, F. L. "Accumulation of Chondrules on Asteroids" (abstract). Page 345 in C. L. Hemenway, P. M. Millman, and A. F. Cook, editors, *Evolutionary and Physical Properties of Meteoroids, Proceedings of the International Astronomical Union's Colloquium No. 13*. NASA SP-319, 1973.
- . "Radial Pressure in the Solar Nebula Affecting the Motions of Planetesimals." Pages 355-361 in C. L. Hemenway, P. M. Millman, and A. F. Cook, editors, *Evolutionary and Physical Properties of Meteoroids, Proceedings of the International Astronomical Union's Colloquium No. 13*. NASA SP-319, 1973.
- . "Note on the Number and Origin of Apollo Asteroids." *The Moon*, volume 8 (1973), pages 340-345.
- . "Birth and Death of a Comet." *Astronomy*, volume 2 (1974), pages 4-19.
- . "The Nature of Comets." *Scientific American*, volume 230 (1974), pages 49-58.
- Withbroe, G. L. "ATM EUV Observations: The Corona and Transition Region." Presented at the Santa Fe Solar Physics Meeting, Santa Fe, New Mexico, May 1974.
- Withbroe, G. L., R. R. Fisher, P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, and J. E. Vernazza. "Extreme Ultraviolet Observations Acquired by the Harvard ATM Instrument." Presented at the Fifty-Fifth Annual Meeting of the American Geophysical Union, Washington, D.C., April 1974; abstract in *Transactions, American Geophysical Union*, volume 55 (1974), page 408.
- Withbroe, G. L., P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, and J. E. Vernazza. "Extreme Ultraviolet Solar Observations from the Harvard ATM Experiment." Presented at the Solar Physics Division Meeting of the American Astronomical Society, Honolulu, Hawaii, January 1974; abstract in *Bulletin of the American Astronomical Society*, volume 6 (1974), pages 297-298.
- Withbroe, G. L., and J. B. Gurman. "Models of the Chromospheric-Coronal Transition Layer and Lower Corona Derived from Extreme-Ultraviolet Observations." *Astrophysical Journal*, volume 183 (1973), pages 279-289.
- Wood, J. A. "The Fine-Grained Structure of Chondritic Meteorites." Presented at the Dusty Universe Symposium honoring Dr. Fred L. Whipple, Smithsonian Astrophysical Observatory, Cambridge, Massachusetts, October 1973.
- . "Bombardment As a Cause of the Lunar Asymmetry." *The Moon*, volume 8 (1973), pages 73-103.
- . (with Lunar Sample Analysis Planning Team). "Lunar Science IV." *Science*, volume 181 (1973), pages 615-622.
- . "The Moon after Apollo: Lunacies Reconsidered." *Harvard Today*, winter issue (1974), pages 6-7.
- . "A Survey of Lunar Rock Types and Comparison of the Crusts of Earth and Moon." Presented at the Soviet-American Conference on Cosmochemistry of the Moon and Planets, Moscow, June 1974.
- Wood, J. A., and H. E. Mitler. "Origin of the Moon by a Modified Capture Mechanism, or Half a Loaf is Better Than a Whole One" (abstract). Pages 851-853 in *Lunar Science V*. Houston, Texas: Lunar Science Institute, 1974.



Wright, F. W. *Particularized Navigation (How to Prevent Navigation Emergencies)*. Part I, Emergency Booklet, 66 pages; Part II, Emergency Pamphlet, 51 pages. Cambridge, Maryland: Cornell Maritime Press, Inc., 1973.

SMITHSONIAN ASTROPHYSICAL OBSERVATORY SPECIAL REPORTS

352. G. E. O. Giacaglia. "Lunar Perturbations on Artificial Satellites of the Earth." October 1, 1973.
353. E. M. Gaposchkin, editor. "1973 Smithsonian Standard Earth (III)." November 28, 1973. Part I: "Historical Introduction," by C. A. Lundquist and F. L. Whipple. Part II: "SAO Network: Instrumentation and Data Reduction," by M. R. Pearlman, J. M. Thorp, C. R. H. Tsiang, D. A. Arnold, C. G. Lehr, and J. Wohn. Part III: "Satellite Dynamics," by E. M. Gaposchkin. Part IV: "Estimate of Gravity Anomalies," by M. R. Williamson and E. M. Gaposchkin. Part V: "Determination of the Geopotential," by E. M. Gaposchkin, M. R. Williamson, Y. Kozai, and G. Mendes. Part VI: "Determination of Station Coordinates," by E. M. Gaposchkin, J. Latimer, and G. Veis.
354. L. G. Jacchia. "Variations in Thermospheric Composition: A Model Based on Mass-Spectrometer and Satellite-Drag Data." November 30, 1973.
355. R. E. Schild. "Optical and Mechanical Performance of the Tillinghast 60-Inch Reflector, Mt. Hopkins Observatory." December 14, 1973.
356. J. W. Slowey. "Radiation-Pressure and Air-Drag Effects on the Orbit of the Balloon Satellite 1963 30D." January 18, 1974.
357. M. R. Pearlman, J. L. Bufton, D. Hogan, D. Kurtenbach, and K. Goodwin. "SAO/NASA Joint Investigation of Astronomical Viewing Quality at Mt. Hopkins Observatory: 1969-1971." January 23, 1974.
358. P. A. Mohr. "1973 Ethiopian-Rift Geodimeter Survey." January 28, 1974.
359. R. L. Kurucz. "Semiempirical Calculation of gf Values, II: Fe I (3d+4s)<sup>8</sup>-(3d+4s)<sup>7</sup> 4p." April 15, 1974.

SMITHSONIAN SCIENCE INFORMATION EXCHANGE, INC.

- Goldstein, Jan. "Coordinating Research Nationwide: Some Help For Association Executives." *Association Management* (February 1974), pages 84-85.
- Hersey, David F. "SSIE: A Unique Data Base." *Government Publications Review*, volume 1, number 2 (winter 1973), pages 209-212.
- Hersey, D. F., W. R. Foster, and S. Liebman. "The Smithsonian Science Information Exchange." *Chemical Technology*, volume 3, number 12 (December 1973), pages 733-738.
- Hersey, D. F., M. Snyderman, W. R. Foster, B. Hunt, and P. Morgan. "On-Line Retrieval and Machine-Aided Indexing in a Large Data Base of Ongoing Research Information." *Proceedings of the 36th Annual Meeting of the American Society for Information Science*, volume 10 (October 1973), pages 89-90.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

BOOKS

- Ospina, H. Mariano, and Robert L. Dressler. *Orquídeas de las Américas*. 496 pages. Fondo de Publicaciones Científicas, Medellín, 1974.
- Ricklefs, Robert E. *Ecology*. 861 pages. Newton, Massachusetts: Chiron Press, 1973.

ARTICLES

- Abele, Lawrence G. "A New Species of *Sesarma*, *S. (Holometopus) rubinoforum* from the Pacific Coast of Panama (Crustacea, Decapoda, Grapsidae)." .

*Proceedings of the Biological Society of Washington*, volume 86, number 27 (1973), pages 333-338.

———. "Taxonomy, Distribution and Ecology of the Genus *Sesarma* (Crustacea, Decapoda, Grapsidae), in Eastern North America, with Special Reference to Florida." *American Midland Naturalist*, volume 90, number 2 (1973), pages 375-386.

———. "Species Diversity of Decapod Crustaceans in Marine Habitats." *Ecology*, volume 55, number 1 (1974), pages 156-161.

Abele, Lawrence G., and Robert H. Gore. "Selection of a Lectotype for *Megalobrachium granuliferum* Stimpson, 1958 (Decapoda, Forcellanidae)." *Crustaceana*, volume 25, number 1 (1973), pages 105-106.

Abele, Lawrence G., Michael H. Robinson, and Barbara Robinson. "Observations on Sound Production by Two Species of Crabs from Panama (Decapoda, Gecarcinidae, and Pseudothelphusidae)." *Crustaceana*, volume 25, number 2 (1973), pages 147-152.

Bohlke, James E., and John E. McCosker. "Two Additional West Atlantic Gobies (Genus *Gobiosoma*) That Remove Ectoparasites from Other Fishes." *Copeia*, volume 3 (1973), pages 609-610.

Buckman, Nancy S., and John C. Ogden. "Territorial Behavior of the Striped Parrotfish *Scarus croicensis* Bloch (Scaridae)." *Ecology*, volume 54, number 6 (1973), pages 1377-1382.

Dressler, Robert L. "Elleanthus capitatus—A Name That Must be Changed, or Is It?" *American Orchid Society Bulletin*, volume 42 (1973), pages 419-420.

———. "Notas sobre el Género *Encyclia* en México." *Orquídea* (Méx.), volume 3, number 10 (1974), pages 306-313.

Dressler, Robert L., and Eric Hagsater. "Una Govenia Nueva del Estado de Jalisco: *Govenia tequilana*." *Orquídea* (Méx.), volume 3 (1973), pages 175-183.

Dressler, Robert L., and Glenn E. Pollard. "Una Nueva *Encyclia* del sureste de México." *Orquídea* (Méx.), volume 3 (1973), pages 272-279.

Elton, Charles S. "The Structure of Invertebrate Populations Inside Neotropical Rain Forest." *Journal of Animal Ecology*, volume 42, number 1 (1973), pages 55-104.

Fleming, Theodore H. "Numbers of Mammal Species in North and Central American Forest Communities." *Ecology*, volume 54, number 3 (1973), pages 555-563.

Gliwicz, J. "A Short Characteristic of a Population of *Proechimys semispinosus* (Tomes, 1860)—a Rodent Species of the Tropical Rain Forest." *Bulletin de la Academie Polonaise de Sciences, Series Science Biology*, cl. 2, volume 21, number 6 (1973), pages 413-418.

Glynn, Peter William. "Ecology of a Caribbean Coral Reef. The *Porites* Reef-Flat Biotope: Part I. Meteorology and Hydrography." *Marine Biology*, volume 20 (1973), pages 297-318.

———. "Ecology of a Caribbean Coral Reef. The *Porites* Reef-Flat Biotope; Part II. Plankton Community with Evidence for Depletion." *Marine Biology*, volume 22, number 22, number 1 (1973), pages 1-21.

Glynn, Peter W., and Robert H. Stewart. "Distribution of Coral Reefs in the Pearl Islands (Gulf of Panama) in Relation to Thermal Conditions." *Limnology and Oceanography*, volume 18, number 3 (1973), pages 367-379.

Gore, Robert H., and Lawrence G. Abele. "Three New Species of Porcellanid Crabs (Crustacea, Decapoda, Porcellanidae) from the Bay of Panama and Adjacent Caribbean Waters." *Bulletin of Marine Science*, volume 23, number 3 (1973), pages 559-573.



- Graham, Jeffrey B. "Heat Exchange in the Black Skipjack, and the Blood-Gas Relationship of Warm-Bodied Fishes." *Proceedings of the National Academy of Science*, volume 70, number 7 (1973), pages 1964-1967.
- . "Terrestrial Life of the Amphibious Fish *Mnierpes macrocephalus*." *Marine Biology*, volume 23 (1973), pages 83-91.
- Hespenheide, Henry A. "A Novel Mimicry Complex: Beetle and Flies." *Journal of Entomology*, volume 48, number 1 (1973), pages 49-56.
- Kropach, Chaim, and John D. Soule. "An Unusual Association between an Ectoproc and a Sea Snake." *Herpetologica*, volume 29, number 1 (1973), pages 17-19.
- Lang, Judith. "Interspecific Aggression by Scleractinian Corals: 2. Why the Race Is Not Only to the Swift." *Bulletin of Marine Science*, volume 23, number 2 (1973), pages 260-279.
- Lehman, John T., and James W. Porter. "Chemical Activation of Feeding in the Caribbean Reef-Building Coral *Montastrea cavernosa*." *Biological Bulletin*, volume 145 (1973), pages 140-149.
- Leigh, Egbert G. "The Evolution of Mutation Rates." *Genetics Supplement*, volume 73 (1973), pages 1-18.
- Linares, Olga F. "Current Research: Lower Central America." *American Antiquity*, volume 38 (1973), pages 234-235.
- . "Excavaciones en Barriles y Cerro Punta: Nuevos Datos sobre la Epoca Formativa Tardia (0-500 D.C.) en el Oeste panameño." *Actas del Tercer Simposio de Antropología, Arqueología y Ethnohistoria de Panamá*, Octubre 1973.
- . "From the Late Preceramic to the Early Formative in the Intermediate Area: Some Issues and Methodologies." *First Symposium of Archaeology and History, Puerto Rico*, December 1973.
- . [Review] "Ngawbe: Traditions and Change among the Western Guaymi of Panama," by Philip D. Young. *American Anthropologist*, volume 75, number 4 (1973), pages 1011-1012.
- . [Review] "Pre-Columbian Man Finds Central America: The Archaeological Bridge," by Doris Stone. *American Journal of Archaeology*, volume 77 (1973), pages 361-362.
- . [Review] "Revista Española de Antropología Americana (Trabajos y conferencias)," volume 6, edited by Jose Alcina Franch. *American Journal of Archaeology*, volume 77 (1973), pages 253-254.
- Lubin, Yael D. "Web Structure and Function: The Non-adhesive Orb-Web of *Cyrtophora moluccensis* (Doleschall) (Aranaea: Araneidae)." *Forma et Functio*, volume 6 (1973), pages 337-358.
- Macurda, Donald B., and David L. Meyer. "Feeding Posture of Modern Stalked Crinoids." *Nature*, volume 247 (1974), pages 394-396.
- Meyer, David L. "Feeding Behavior and Ecology of Shallow-Water Unstalked Crinoids (Echinodermata) in the Caribbean Sea." *Marine Biology*, volume 22, number 2 (1973), pages 105-129.
- Montgomery, G. G., W. E. Cochran, and M. E. Sunquist. "Radiolocating Arboreal Vertebrates in Tropical Forest." *Journal Wildlife Management*, volume 37, number 3 (1973), pages 426-428.
- Montgomery, G. G., A. S. Rand, and M. E. Sunquist. "Post-Nesting Movements of Iguanas from a Nesting Aggregation." *Copeia*, volume 3 (1973), pages 620-622.
- Morton, Eugene S. "On the Evolutionary Advantages and Disadvantages of Fruit Eating in Tropical Birds." *American Naturalist*, volume 107 (1973), pages 8-22.



- Moynihan, Martin H. "The Evolution of Behavior and the Role of Behavior in Evolution." *Breviora*, volume 415 (1973), pages 1-29.
- Ogden, John C., and Nancy S. Buckman. "Movements, Foraging Groups, and Diurnal Migrations of the Striped Parrotfish *Scarnes croicensis* Bloch (Scaridae)." *Ecology*, volume 54, number 3 (1973), pages 589-596.
- Oppenheimer, John R. "Social and Communicatory Behavior in the *Cebus* Monkey." Pages 251-271 in C. R. Carpenter, editor, *Behavioral Regulators of Behavior in Primates*. Lewisburg: Bucknell University Press, 1973.
- Porter, James W. "Biological, Physical, and Historical Forces Structuring Coral Reef Communities on Opposite Sides of the Isthmus of Panama." Thesis (1973), pages 1-146.
- Porter, James W., and Karen Porter. "The Effects of Panama's Cuna Indians on Coral Reefs." *Discovery*, volume 8, number 2 (1973), pages 65-70.
- Ricklefs, Robert E., and John Cullen. "Embryonic Growth of the Green Iguana *Iguana iguana*." *Copeia*, volume 2 (1973), pages 296-305.
- Robinson, Michael H. "The Evolution of Cryptic Postures in Insects, with Special Reference to Some New Guinea Tettigoniids (Orthoptera)." *Psyche*, volume 80, number 3 (1973), pages 159-165.
- . "Insect Anti-predator Adaptations and the Behavior of Predatory Primates." *Actas del IV Congreso Latinoamericano de Zoología*, volume 2 (1973), pages 811-836.
- . "The Stabilimenta of *Nephila clavipes* and the Origins of Stabilimentum-Building in Araneids." *Psyche*, volume 80, number 4 (1973), pages 277-288.
- . "The Biology of Some *Argiope* Species from New Guinea: I. Predatory Behavior and Stabilimentum Construction." *Zoological Journal of the Linnean Society*, London.
- Robinson, Michael H., and Barbara Robinson. "Ecology and Behavior of the Giant Wood Spider *Nephila maculata* (Fabricius) in New Guinea." *Smithsonian Contribution to Zoology*, number 149 (1973), 76 pages.
- Robinson, Michael H., B. Robinson, and Yael D. Lubin. "Phenology, Species Diversity and Natural History of Web-Building Spiders on Three Transects at Wau, New Guinea." *Pacific Insects*, volume 20 (1974), pages 117-163.
- Rubinoff, Ira. "A Sea Level Canal in Panama." Theme 3 (1973). Pages 1-13 in *Les Consequences biologiques des Canaux interocéaniques*. XVII Congress International de Zoologie, Montecarlo, 1972.
- Smith, Wayne L. "Record of a Fish Associated with a Caribbean Sea Anemone." *Copeia*, volume 3 (1973), pages 597-598.
- Todd, Eric S. "Positive Buoyancy and Air-Breathing: A New Piscine Gas Bladder Function." *Copeia*, volume 3 (1973), pages 461-464.
- . "A Preliminary Report of the Respiratory Pump in the *Dactyloscopidae*." *Copeia*, volume 1 (1973), pages 115-119.
- Williams, Norris H., and Robert L. Dressler. "Oncidium Species Described by Jacquin and the Typification of *Oncidium*." *Taxon*, volume 22, number 2/3 (1973), pages 221-227.
- Willis, Edwin O. "The Behavior of Ocellated Antbirds." *Smithsonian Contributions to Zoology*, number 144 (1973), 57 pages.
- Wolda, Hindrik. "Ecology of Some Experimental Populations of the Landsnail *Cepaea nemoralis* (L.): II. Production and Survival of Eggs and Juveniles." *Netherlands Journal of Zoology*, volume 32, number 2 (1973), pages 168-188.
- Zaret, Thomas M., and R. T. Paine. "Species Introduction in a Tropical Lake." *Science*, volume 182 (1973), pages 449-455.

Zucker, Naida. "Shelter Building as a Means of Reducing Territory Size in the Fiddler Crab, *Uca terpsichores* (Crustacea: Ocypodidae)." *American Midland Naturalist*, volume 91 (1973), pages 224-236.

## HISTORY AND ART

### COOPER-HEWITT MUSEUM

"An American Museum of Decorative Art and Design: Designs from the Cooper-Hewitt Collection." Foreword, Sir John Pope-Hennessy; introduction, Lisa Taylor; drawings, Elaine Evans Dee; textiles, Milton Sondag; wall-papers, Catherine Lynn Frangiamore. 118 pages, 246 black-and-white and 2 color illustrations. New York: Victoria & Albert Museum, London, 1973.

"Cooper-Hewitt Museum Benefit Auction Catalogue." Introduction by Lisa Taylor. 98 pages, 66 black-and-white illustrations, 1974.

### FREER GALLERY OF ART

#### BOOKS

Atil, Esin. *Ceramics from the World of Islam*. 225 pages, 101 illustrations. Washington, D.C.: Freer Gallery of Art, Smithsonian Institution, 1973.

Lawton, Thomas. *Chinese Figure Painting*. 236 pages, 59 illustrations. Washington, D.C.: Freer Gallery of Art, Smithsonian Institution, 1973.

#### ARTICLES

Atil, Esin. "Two Ilkhanid Candlesticks at the University of Michigan." *Kunst des Orients*, volume VIII, number 1-2 (1972), pages 1-33.

———. "Exhibition of Islamic Pottery at the Freer Gallery of Art." *Connoisseur*, volume 185, number 745 (March 1974), pages 219-226.

Chase, W. Thomas, III. "Conservation in the People's Republic of China." *Bulletin of the American Institute for Conservation of Historic and Artistic Works*, volume 14, number 2 (1974), pages 131-141.

Lawton, Thomas. [Review] "Die Siegelschrift (Chuan-shu) in der Ch'ing-Zeit, ein Beitrag zu Geschichte der chinesischen Schriftkunst," by Lothar Ledderhose. *Journal of the Oriental Society* (1973).

Lovell, Hin-cheung. "Chinese Figure Painting at the Freer Gallery of Art." *Oriental Art*, n.s., volume 19, number 3 (autumn 1973), pages 330-332.

———. *An Annotated Bibliography of Chinese Painting Catalogues and Related Texts*. Michigan Papers in Chinese Studies No. 16, Ann Arbor, 1973.

Winter, John. [Review] *Science and Archaeology*, R. H. Brill, editor, MIT Press, 1971, in *ASTM Standardization News*, volume 2, Number 3, March 1974 page 48.

#### LECTURES

Atil, Esin. "Islamic Pottery." Darien Community Association, Darien, Conn. ———. "Turkish Paintings as Historical Documents." University of Maryland, Baltimore.

———. "Exhibition of Islamic Pottery at the Freer Gallery of Art." Smithsonian Associates, Washington, D.C.

———. "Formation of Ottoman Miniature Painting." Carnegie Center, New York.

———. "Ottoman History through the Works of the Court Painters." Textile Museum, Washington, D.C.

———. "Turkish Miniature Painting." Washington Club, Washington, D.C.



- . "Historical Survey of Islamic Painting." Foreign Service Institute, State Department, Washington, D.C.
- Chase, W. Thomas, III. "The Art of the Hyōgushi." Royal Ontario Museum, Toronto, Canada.
- . "Impressions of China." Westmoreland Congregational Church, Washington, D.C.
- . "Conservation in the People's Republic of China." Washington Region Conservation Guild, Washington, D.C.
- . "Archaeology in the People's Republic of China." Massachusetts Institute of Technology, Cambridge, Mass.
- . "Comparative Analysis of Archaeological Bronzes." National Bureau of Standards, Analytical Chemistry Seminar, Washington, D. C.
- . "Fakes and Forgeries in Sculpture—Oriental Bronzes and Ceramics." Smithsonian Associates course, "Fakes-Imposters of the Marketplace," Washington, D.C.
- . "My Trip to China." Annual Meeting of the American Institute for Conservation, Cooperstown, N.Y.
- . "Technical Aspects of Chinese Metalwork." Society of North American Goldsmiths, Washington, D.C.
- Lawton, Thomas. "Recent Archaeological Excavations in the People's Republic of China." Twentieth Century Club, Washington, D.C.
- . "Chinese Narrative Painting." Baltimore Art Society, Maryland.
- . "Chinese Art." Saint Louis Art Museum Society, Missouri.
- . "Chinese Art in the Freer Gallery." Corcoran Gallery Group, Washington, D.C.
- . "Chinese Buddhist Art." Princeton Academic Group, New Jersey.
- . "Recent Archaeological Excavations in the People's Republic of China." Voice of America, Washington, D.C.
- Stern, Harold P. "A Survey of Japanese Art." Kimbell Art Museum, Fort Worth, Texas.
- . "The Freer Gallery of Art—Yosa Buson." Friends of Oriental Art of the Seattle Art Museum, Washington.
- . "Yosa Buson." Seattle Art Museum, Washington.
- Winter, John. "Archaeological Dating Methods." Smithsonian Associates, Washington, D.C.
- . "Chemistry in Museums: A Quick Tour of the Field." Sigma Xi Society, University of West Florida, Pensacola, Fla.
- . "The Scanning Electron Microscope in Pigment Studies." ICOM Conservation Committee, Working Group on the Paint Layer, Copenhagen, Denmark.

#### JOSEPH HENRY PAPERS

- Aldrich, Michele L. "Edward Berry" in Edward T. James, editor, *Dictionary of American Biography, Supplement Three: 1941-1945* (1973).
- . "Clarence King" in Charles Gillispie, editor, *Dictionary of Scientific Biography*, volume 7 (1973).
- . "Jonathan Homer Lane" in C. C. Gillispie, editor, *Dictionary of Scientific Biography*, volume 8, pages 1-3. New York, 1973.

#### LECTURES AND SEMINARS

- Hobbins, James M. "Applications of Computer Technology to Historical Editing." History Department, University of Maryland, November 1973.



- Molella, Arthur P. "Research in the History of Physics—The Case of Joseph Henry." Symposium: History in the Teaching of Physics, New York State Section of the American Association of Physics Teachers, Troy, New York, October 13, 1973.
- . "Active Nature and 19th-Century German Physics: The Atomic Philosophy of Gustav T. Fechner." Zoology Colloquium, University of Maryland, December 12, 1973.
- with Nathan Reingold, Lecture and Seminar on Science, Technology, and Public Policy, February 7, 1974, Fogarty International Center, National Institutes of Health.
- Reingold, Nathan. "Joseph Henry on the Scientific Life: An AAAS Presidential Address of 1850." American Association for the Advancement of Science session on the Development of American Science in the 19th and 20th Centuries, San Francisco, California, March 1, 1974.
- . "Time and Place Physics." Carnegie-Mellon/Pittsburgh Workshop on The Place of the Geophysical Sciences in 19th Century Natural Philosophy, March 14-17, 1974.
- with Arthur P. Molella. Lecture and Seminar on Science, Technology and Public Policy, February 7, 1974, Fogarty International Center, National Institutes of Health.

#### NATIONAL ARMED FORCES MUSEUM ADVISORY BOARD

- Elliott, John M. "Painting of Special Aircraft." *American Aviation Historical Society Journal*, volume 18, number 3 (3d quarter 1973), pages 199-202.

#### NATIONAL COLLECTION OF FINE ARTS

##### ARTICLES

- Andrews, Martha. "Bicentennial Inventory of American Painting." *ARLIS/NA* (Art Libraries Society of North America) *Newsletter*, October 1973.
- Bolton-Smith, Robin. "The Sentimental Paintings of Lilly Martin Spencer." *Antiques*, volume 103, number 7 (July 1973).
- Booth, Abigail. "The Bicentennial Inventory." *American Art Review* September-October 1973. (Reprint of "An Inventory for the Art Researcher." *Museum News*, December 1972).
- Breskin, Adelyn D. *Art of the Pacific Northwest: From the 1930s to the Present.* Exhibition catalogue acknowledgments, December 7, 1973.
- . *Tribute to Mark Tobey.* Exhibition catalogue acknowledgments, June, 7, 1974.
- Fink, Lois. "American Artists in France, 1850-1870." *American Art Journal*, volume 5, number 2, November 1973.
- Flint, Janet. *Modern American Woodcuts.* Exhibition checklist. 16 pages, 5 illustrations. November 30, 1973.
- . *Herman A. Webster: Drawings, Watercolors and Prints.* Exhibition checklist. 8 pages, 1 illustration, February 15, 1974.
- Hanan, Sara B. *Selected and Annotated List of Basic Reference Materials in the NCFA/NPG Library: Fine Arts.* (Research guide distributed in the library.) 32 pages, 1974.
- Herman, Lloyd E. *Introduction to Form and Fire: Natzler Ceramics 1939-1972.* Exhibition catalogue. 12 pages, 80 illustrations, July 27, 1973.
- . Foreword to *Shaker, Furniture and Objects from the Faith and Edward Deming Andrews Collection Commemorating the Bicentenary of the American Shakers.* Exhibition catalogue. 88 pages, 65 illustrations, November 2, 1973.

- Hopps, Walter. *Anne Truitt. Catalogue*. 64 pages, 45 illustrations. Baltimore, Md.: Garamond/Pridemark Press, 1974.
- . *Introduction to Revival!*, by Eleanor Dickinson, text by Barbara Ben-ziger. New York: Harper & Row, 1974.
- Panzer, Nora. *National Collection of Fine Arts/Renwick Gallery: Information for Docents. Handbook*. 20 pages. May 1974.
- Taylor, Joshua C. Foreword to *Form and Fire: Natzler Ceramics 1939-1972*. Exhibition catalogue. July 27, 1973.
- . *Introduction to Robert Loftin Newman: 1827-1912*. Exhibition Cata-logue. March 18, 1974.
- . *Robert Loftin Newman: 1827-1912*. Checklist essay. October 26, 1973.
- . *Introduction to Shaker: Furniture and Objects from the Faith and Edward Deming Andrews Collection Commemorating the Bicentenary of the American Shakers*. Exhibition catalogue. 88 pages, 65 illustrations. November 2, 1973.
- . *Introduction to Art of the Pacific Northwest*. Exhibition catalogue. Feb-ruary 8, 1974.
- . *Tribute to Mark Tobey*. Exhibition catalogue essay. June 7, 1974.
- . "Evolution of the Fine Arts." *Treasures of America and Where to Find Them*. Readers' Digest Association, Inc., 1974.
- Taylor, Joshua C., with L. Quincy Mumford. Foreword to *Catalog of the 23rd National Exhibition of Prints*. Exhibition catalogue. Washington, D.C.: Li-brary of Congress, September 24, 1973.
- Walker, William B. "Some Notes on L. C. Class N." Article. *ARLIS/NA* (Art Libraries Society of North America) *Newsletter*, volume 2 (April 1974), pages 33-34.

#### LECTURES AND SEMINARS

- Andrews, Martha. "Progress of the Bicentennial Inventory of American Paint-ing." Kansas City (Mo.) Inventory Survey, Nelson Gallery of Art. Kansas City, Mo. June 20, 1974.
- Birmingham, Peter. "Crisis in Public Education." Seminar participant. George Washington University, Washington, D.C. November 1973.
- . "Barbizon Art in America." Indianapolis Art Museum, Ind. November 1973.
- . Discussion and Tour of the National Collection of Fine Arts for Inter-national Committee on Museums, American Association of Museums, Na-tional Collection of Fine Arts. April 1974.
- Bingham, Lois, and Cogswell, Margaret. "Programs of the Office of Exhibitions Abroad." Professional and Business Women's Association of Alexandria, Va. November 27, 1973.
- Bolton-Smith, Robin. "Lilly Martin Spencer." Washington Women Art Profes-sionals. Washington, D.C. August 9, 1973.
- . "Miniatures in the National Collection of Fine Arts." Smithsonian Associates. December 3, 1973.
- . "Lilly Martin Spencer." Radio interview, Station WMAU, Washington, D.C. August 1973.
- Booth, Abigail. "Women and the Museum Profession." Wesleyan College, Macon, Ga. October 30, 1973.
- . "Bicentennial Inventory of American Painting." Gaithersburg (Md.) Branch, American Association of University Women. November 12, 1973.
- . "Bicentennial Inventory of American Painting." Washington Guild of Conservators. December 6, 1973.



- . "Bicentennial Inventory of American Painting." Bay Area Inventory Survey, Bohemian Club, San Francisco, Calif. March 26, 1974.
- . "Bicentennial Inventory of American Painting." Rockville (Md.) Branch, American Association of University Women. May 11, 1974.
- Breeskin, Adelyn D. "Women in the Arts." Akron College Club, Akron, Ohio. September 15, 1973.
- . Judge. "The 1973 Maryland Open Art Show." Maryland School of Art and Design, Silver Spring, Md. October 29, 1973.
- . "Roots of Modernism in Painting and Sculpture." Abilene Fine Arts Museum, Abilene, Tex. November 16, 1973.
- . "Mary Cassatt." Northwood Experimental Art Institute, Dallas, Tex. November 16, 1973.
- . "The Social Responsibility of Museums and of Artists." Northern Virginia Fine Arts Association, Alexandria, Va. March 26, 1974.
- . "The National Collection of Fine Arts." Guild of our Friends of Art from the William Rockhill Nelson Gallery of Art, Kansas City, Mo. National Collection of Fine Arts. April 18, 1974.
- . "Mark Tobey." Smithsonian Associates, June 12, 1974.
- Cogswell, Margaret. "International Art Exhibitions." Junior Officer Trainees, United States Information Agency. November 23, 1973.
- . "The Organization and Preparation of Traveling Exhibitions." Massachusetts College of Art, Boston. March 29, 1974.
- Fink, Eleanor E. "Visual Documentation Activities: 62nd Annual Meeting of the College Art Association of America, Detroit, January 1974." ARLIS/NA (Art Libraries Society of North America) Washington-Baltimore Chapter, Washington, D.C. February 14, 1974.
- Fink, Lois. "Image of Innocence: The Child in Nineteenth Century Art." Birmingham Museum of Art, Ala. December 12, 1973.
- . "The Quality of Sentiment: Women, Children, Blacks, Dumb Animals and Christ in Nineteenth Century Art." Georgetown University Department of Fine Arts. Washington, D.C. January–May 1974.
- . "The American Renaissance: Art in the United States ca 1870 to 1913." Smithsonian Associates Class, winter 1974.
- . "American Taste and Patronage at Mid-Century as Reflected in the Grand Salon of the Renwick Gallery." Lecture to graduate seminar. "Material Aspects of American Civilization," George Washington University/University of Maryland. National Portrait Gallery. October 18, 1973.
- . "Late 19th-Century American Art: Cosmopolitan Tastes and the Genteel Tradition." Sponsored jointly by the National Collection and the University of Delaware. April 19, 1973.
- Flint, Janet. Juror. Philadelphia Print Club Exhibition. Philadelphia, Pa.
- . "Print Collection of the National Collection of Fine Arts." Washington Print Club.
- . "Collecting Prints and Posters." Smithsonian Associates.
- . "History of Printmaking in the United States." American University, Washington, D.C. Spring 1974.
- Gordon, Margery. "The Smithsonian and the Schools." Fairfax (Va.) County Schools. March 1974.
- . "Elementary Art Education." Teachers' workshop, Association of Childhood Education International, National Collection of Fine Arts. April 1974.
- Grana, Teresa. "Innovative High School Programs." Rockefeller Foundation, San Francisco, Calif. November 1973.
- . "Portfolio Day." National Association of Schools of Art, Parsons School of Design, New York, N.Y. April 1974.



- Herman, Lloyd E. Judge. "Winter Park (Fla.) Sidewalk Art Festival." January and March 1974.
- . Juror. "North American Goldsmiths Competition." Minnesota Museum of Art, St. Paul, Minn. March 10-12, 1974.
- . Guest speaker. Raleigh (N.C.) Fine Arts Society. November 1973.
- . "Furniture Options for the Twentieth Century." Smithsonian Associates. Renwick Gallery.
- Hopps, Walter. "Joseph Cornell: His Visual Poetics." National Collection of Fine Arts. February 1974.
- . Judge. "Tenth Monroe National Annual Art Exhibition." Masur Museum of Art, Monroe, La. October 13, 1973.
- Kaneshiro, Allan K. "Etching Et Al." Smithsonian Associates. Spring 1974.
- . "The Saturday Painter." Smithsonian Associates. Spring 1974.
- Martin, Edith I. Judge. "Summer Media Workshop." High School Students' Photography Contest. 1974.
- McClelland, Donald R. Juror. Anne Arundel County (Md.) Fair. September 12, 1973.
- . Juror. "Department of Defense Show." March 26, 1974.
- . Foreword to *Watercolor*, by Arthur N. Starin. The Tweed Museum of Art, University of Minnesota, Duluth. August 8, 1973.
- . "American Painting at the Turn of the Twentieth Century." "Mid-Nineteenth Century Architecture." Brigham Young University, Provo, Utah, September 20-21, 1973.
- . "Introduction and Comments on a Tour of Russia." Graduate School, U.S. Department of Agriculture, Washington, D.C. October 10, 1973.
- . "Development of the Arts and Architecture in Maryland in the Eighteenth Century." University of Maryland, Eastern Shore, Princess Anne, Md. April 26, 1974.
- Monroe, Michael W. Judge. High School Students' Design Contest, D.C. Bicentennial, Washington, D.C. February 1974.
- . "The Goldsmith Exhibition." The Society of North American Goldsmiths Conference, Renwick Gallery.
- Muhlert, Jan K. "Collectors and Collections: The National Collection of Fine Arts." National Collection of Fine Arts. October 30, 1973.
- . "Joseph Cornell." National League of American Pen Women, Alexandria, Va. January 4, 1974.
- . "Women Artists: History/Conditions/Aspirations." National Collection of Fine Arts. January 24, 1974.
- . Judge. "The Washington Post Recreation Association Second Annual Arts, Crafts, and Photography Show." Washington, D.C. October 19, 1973.
- . Judge. "Vienna Society of Artists: Fourth Annual Juried Show." Vienna, Va. November 16, 1973.
- . Judge. "Resident Smithsonian Associate Program Photography Contest." February 2, 1974.
- . Judge. "Winter Haven Sunshine Art Festival." Winter Haven, Fla. March 29-30, 1974.
- Myette, Ellen M. "History and Restoration of the Renwick Gallery." Corcoran Luncheon Series. Renwick Gallery. October 17, 1973.
- . "Renwick Gallery." Talk and tour for members of the International Club.
- Panzer, Nora. "Docent Training." Northeast Regional Conference, American Association of Museums, Washington, D.C.
- Taylor, Joshua C. "Degas and the Photographic Melancholy." National Gallery of Art, Washington, D.C. October 14, 1973.

- . "The Lost Art or What Happened in the Grove?" University of Chicago. November 12, 1973.
- . "The Present and Futurism." Solomon R. Guggenheim Museum, New York City. November 20, 1973.
- . "American Art, Past and Present." International Club of Washington, D.C. January 31, 1974.
- . "Art of the Pacific Northwest." National Collection of Fine Arts. February 28, 1974.
- . "Religious Impulse in American Art." Baylor University, Waco, Tex. April 16, 1974.
- . "Where Is Art?" Trinity University, San Antonio, Tex. April 18, 1974.
- . "Cubism and Futurism." Art Institute of Chicago. April 21, 1974.
- Walker, William B. "The (Library of Congress) N Classification: How the Fourth Edition Works." Second Annual Conference, Art Libraries Society of North America, Detroit, Mich. January 22, 1974.
- . "Art Research Facilities in Washington: the NCFA/NPG Library." District of Columbia Library Association, NCFA/NPG Library. February 20, 1974.
- . "Library Materials for Research on American Prints." Panel presentation. Washington Print Club, National Collection of Fine Arts. February 24, 1974. (A special exhibition of books and catalogs on print collecting and research on prints was prepared for the program.)

## NATIONAL MUSEUM OF HISTORY AND TECHNOLOGY

### BOOKS AND MONOGRAPHS

- Battison, Edwin A., and Patricia Kane. *American Clocks, 1725-1865*. 207 pages. New York Graphic Society, 1973.
- Boorstin, Daniel J. *Democracy and Its Discontents: Reflections on Everyday America*. 136 pages. New York: Random House, 1974.
- Berkebile, Donald H., with Smith Hempstone Oliver. *Wheels and Wheeling, The Smithsonian Cycle Collection*. 104 pages. Smithsonian Studies in History and Technology, number 24, 1974.
- Chapelle, Howard I. *History of the American Fishing Schooners*. 690 pages. New York: W. W. Norton & Co., Inc., 1973.
- Cooper, Grace R. *Thirteen-Star Flags — Keys to Identification*. 16 pages. Washington, D.C.: Smithsonian Institution Press, 1973.
- Davis, Audrey B. *The Circulation of the Blood and Medical Chemistry in England, 1650-1680*. 263 pages. Kansas: Coronado Press, 1973.
- . *A Bibliography on Women in Science and Society*. 50 pages. New York: Science History Publishers, June 1974.
- Hamarneh, Sami K. *Origins of Pharmacy and Therapy in the Near East*. xiii + 176 pages. Tokyo, Japan: The Naito Foundation, 1973.
- . *Al-Biruni's Book on Pharmacy and Materia Medica, Introduction, Commentary, and Evaluation*. 152 pages. Karachi, Pakistan: Hamdard National Foundation, 1973.
- . *The Physician, Therapist and Surgeon Ibn al-Quff*. 199 pages English text + 27 pages Arabic text. Cairo: Atlas Press, 1974.
- Jackson, Melvin H., and Charles DeBeer. *18th Century Gunfounding*. England: Newton Abbey, May 1974.
- Marzio, Peter C. *Rube Goldberg: His Life and Work*. 322 pages. New York: Harper & Row, 1973.
- Post, Robert C. [chief researcher]. *Los Angeles and Its Environs in the Twentieth Century: A Bibliography of a Metropolis*, 518 pages. Los Angeles: The Ward Ritchie Press, 1973.



- Schlebecker, John T., Jr. *The Use of the Land*. 218 pages. Kansas: Coronado Press, 1973.
- Vogel, Robert M. (editor). *A Report of the Mohawk-Hudson Area Survey*. Smithsonian Studies in History & Technology, number 26, 210 pages, 414 illustrations, 1973.
- White, John H., Jr. *Horse Cars, Cable Cars and Omnibuses*. xxxiv + 107 pages. New York: Dover Publications, 1974.

#### ARTICLES, PAPERS, AND RECORDS

- Adrosko, Rita J. Introduction to a reprint of *The Dyer's Companion* by Elijah Bemiss. New York: Dover Publications, Inc., 1973.
- Ahlborn, Richard Eighme. "Peter Glass, a Maker of American Marquetry." *Antiques*, CIV, number 6 (December 1973), pages 1096-1100, 10 illustrations.
- Battison, Edwin A. "A New Look at the Whitney Milling Machine." *Technology and Culture*, volume 14, number 4 (October 1973).
- Boorstin, Daniel J. "A Design for an Anytime, Do-It-Yourself, Energy-Free Communication Device." *Harper's Magazine*, pages 83-86, January 1974.
- . "1984 minus 10." Symposium on the future of museums. *Museum News*, pages 49-50, June 1974.
- . "Watergate as 'Cult of Personality.'" *Congressional Quarterly*, News and National Report, July 6, 1973.
- Bruns, Franklin R., Jr. "Sweden's Royal Regalia." *The S. P. A. Journal*, volume 35, number 12 (August 1973), pages 748-751, 1 illustration.
- . "Milwaukee Postal History and The Smithsonian." Program for MIL-COPEX 74/75th anniversary stamp exhibition, Milwaukee Philatelic Society, pages 32-34 (2 illustrations).
- . Stamp (and coin) weekly syndicated columns, July 1, 1973-June 30, 1974, in the: *Washington Post*, Washington, D.C.; *Inquirer*, Philadelphia, Pa.; *Post*, Denver, Colo.; *Times*, St. Petersburg, Fla.; *Democrat-Chronicle*, Rochester, N.Y.; *Post-Standard*, Syracuse, N.Y.; *Star Ledger*, Newark, N.J.; and *Patriot-News*, Harrisburg, Pa.
- Clain-Stefanelli, Elvira. "L'evoluzione artistica della medaglia americana." *Medaglia*, Milan, number 5 (1973), pages 87-99, illustrated.
- with Vladimir Clain-Stefanelli. *Medals Commemorating Battles of the American Revolution*, 44 pages. Washington, D.C.: Smithsonian Institution, 1973. Reprinted by the United States Mint, Washington, D.C., 1974.
- , co-editor. *A Survey of Numismatic Research, 1966-1971*, volume III. New York: International Numismatic Commission, 1973.
- . "United States of America," pages 340-349 in *A Survey of Numismatic Research, 1966-1971*. New York, 1973.
- . "Why and How to Collect Ancient Coins." *The M.A.N.A. Journal*, number 2 (1973), pages 4-8.
- Davis, Audrey B. *Triumph Over Disability: The Development of Rehabilitation Medicine in the U.S.A.* Smithsonian Institution Press, October 1973, 49 pages.
- Davis, Audrey B., and Jon Eklund. "The Contributions of British Medicine to American Medicine in the 18th Century." *Proceedings of the 23rd International Congress of History of Medicine*, London, September 1972.
- Davis, Aubrey B., and Uta C. Merzbach. "Graphic Recording in Psychology: The Kymograph." *American Psychology Association*, Washington, D.C., pages 1-6, 1972.
- Fesperman, John T. "Nantucket's Two Musical Treasures." 8 pages, 4 illustrations [brochure describing two organs made in 1831 that are still in use]. Nantucket, Massachusetts: Second Congregational Meeting House Society, 1974.



- Finn, Bernard S. *Submarine Telegraphy: The Grand Victoria Technology*. 48 pages. London: Science Museum, 1973.
- Forman, Paul. "Scientific Internationalism and the Weimar Physicists: The Ideology and Its Manipulation in Germany after World War I." *ISIS*, volume 64 (1973), pages 131-180.
- . "Financial Support and Political Alignment of the Physicists in Weimar Germany." *Minerva*, volume 12 (1974), pages 39-66.
- Hamarneh, Sami K. "Some Aspects of Medical Practice and Institutions in Medieval Islam." *Episteme*, volume 7 (1973), pages 15-31, 5 figures.
- . "Pharmacy in Islam from the Eighth Through the Thirteenth Century." *Radovi sa održanog prigodom proslave 700 obljetnice spomena ljekarne u Trogiru*. Zagreb (1973), pages 165-172.
- . "Ecology and Therapeutics in Medieval Arabic Medicine." *Sudhoffs Archiv*, volume 57 (1973).
- Harris, Elizabeth M. "The American Common Press: The Restoration of a Wooden Press in the Smithsonian Institution." *Journal of the Printing Historical Society*, volume 8 (1972), pages 42-52.
- . *Chaim Goldberg's Shtetl*. Exhibition guide, Hall of Graphic Arts. Smithsonian Institution Press, 1973.
- Harris, Elizabeth M., Peter Marzio, and James Spears. *The Anatomy of A Gallop*. Exhibition guide, 4 pages. Smithsonian Institution Press, 1973.
- Hebert, Raymond J. "Concerning Tenth to Twelfth Century Byzantine Folles." *The Numismatic Circular*, volume 82, number 3 (March 1974), pages 94-96; volume 82, number 4 (April 1974), pages 140-141; volume 82, number 5 (May 1974), pages 189-190.
- . "Countermarked Medieval Islamic Coins." *The Numismatist*, volume 87, number 5 (May 1974), pages 856-861.
- Hindle, Brooke. "The Transfer of Power and Metallurgical Technologies to the United States, 1800-1880." *Colloques Internationaux CNRS; No. 538-L'Acquisition des Techniques par les Pays Non-Iniaterus*, pages 407-428. Paris: 1973.
- . "Shattered Dreams and Unexpected Accomplishment." Pages 422-435 in James Kirby Martin, editor, *Interpreting Colonial America*, New York, 1973.
- . "A Bridge: The History of Technology." Pages 24-32 in Philip C. Ritterbush, editor, *Technology As Institutionally Related to Human Values*, Washington, D.C., 1974.
- Hollis, Helen R. "Jonas Chickering: Father of American Pianoforte-Making," *Antiques*, August 1973.
- . *Pianos at the Smithsonian Institution*. 47 pages, 23 figures. Smithsonian Institution Press, 1973.
- Lundeberg, Philip K. "The Museum Perspective." *Military Affairs*, volume 36 (1973), pages 153-154; volume 38 (1974), pages 29-30.
- . "The Challenge of the Museum Dimension," *Military Affairs*, volume 36 (1973), pages 105-107.
- . "Annual [Presidential] Report to the American Military Institute." *Military Affairs*, volume 37 (1973), pages 101-102.
- Marzio, Peter C. *The Men and Machines of American Journalism*, Exhibition Guide, 144 pages. Smithsonian Institution, 1973.
- Marzio, Peter C., Elizabeth Harris, James Spears, *The Anatomy of a Gallop*, Exhibition Guide, 4 pages. Smithsonian Institution Press, 1973.
- Marzio, Peter C., Stanley Nelson, James Spears. *Prang's American Chromos*, Exhibition Guide, 4 pages. Smithsonian Institution Press, 1973.
- Mayr, Otto. "Automatenlegenden in der Spätrenaissance." *Technikgeschichte* 41 (1974), pages 20-32.

- Multhaupt, Robert P. "Some Observations on the State of the History of Technology." *Technology and Culture*, volume 15 (1974), pages 1-12.
- . "The discovery of borax." *Proceedings of the 13th International Congress of the History of Science* (Moscow), Moscow, 1974.
- Norby, Reidar. "Norway: Posthorn Stamp Printings, 1893-1909." *Scandinavian Scribe*, volume 9, number 6 [June 1973], pages 92-97. (Translation and arrangement from Norwegian original.)
- . "The N. H. Gum Scheme Still Rampant." *Scandinavian Scribe*, volume 10, number 4 (April 1974), pages 51-52.
- . "Scandinavian Varieties." [A series.] *Scandinavian Scribe*, volume 9 (1973), page 98, and volume 10 (1974), pages 11, 27, 46, 77.
- . "The Scandinavian Stamp Lexicon." *Scandinavian Scribe*, volume 10, numbers 3, 4, 5, 6 (1974), pages 37-44, 55-58, 71-74, 87-90.
- Ostroff, Eugene S. "Presentation of Photographs." *Museum News*, pages 42-45, May 1974.
- Post, Robert C., and Carol Ann Poh. *Sites Associated with Social and Humanitarian Movements in America*. 229 pages. Washington: National Survey of Historic Sites and Buildings (National Park Service), 1974.
- . "Electromagnetism as a Motive Power: Robert Davidson's *Galvani* of 1842." *Railroad History*, number 130 (spring 1974), pages 5-52.
- . *Signers of the Constitution: The Middle Atlantic and New England States*. 75 pages. Washington: National Survey of Historic Sites and Buildings (National Park Service), 1973.
- Roney, Ellen E. "Postmaster General Osgood's Report: The State of the Post Office in 1790." *Postal History Journal*, volume 18, number 36 (January 1974), pages 41-43.
- Scheele, Carl H. "Finding the Smithsonian's Country Store Post Office." *Postal Inspection Service Bulletin*, fall 1973, pages 16-19.
- Turner, Craig J. "The Postmaster General's Postage Stamp — Part VI — 1873 Ninety Cent Officials." *The S.P.A. Journal*, volume 35, number 11 (July 1973), pages 665-668, 3 illustrations.
- . "The Postmaster General's Postage Stamp — Part VII — 1890 Ninety Cent Orange." *The S.P.A. Journal*, volume 35, number 12 (August 1973), pages 692-696, 2 illustrations and 1 table.
- . "The Official Imitations of the U.S. 1847 Issue." *The S.P.A. Journal*, volume 36, number 5 (January 1974), pages 567-572, 4 illustrations.
- . "Cyrus Durand — Inventive Genius." *The S.P.A. Journal*, volume 36, number 10 (June 1974), pages 593-605, 11 illustrations.
- Walker, Paul E. "A Byzantine Victory Over the Fatimids at Alexandretta (971)." *Byzantion* XLII (1972), 1974, pages 431-440. (Not previously reported.)
- Warner, Deborah J. "The Landscape Mirror and Glass." *Antiques* (January 1974), pages 158-159.
- Watkins, C. Malcolm. "Ceramics Used in America: Comparisons." *Ceramics in America* (Winterthur Conference Report, 1972, pages 191-196. Charlottesville: University Press of Virginia, 1973.
- Weaver, James M. (Recording, with Sonya Monosoff, violin; Judith Davidoff, viola da gamba.) *Twelve Sonatas, Opus 5, for Violin and Continuo by Arcangelo Corelli* using a copy of the Ridolfi harpsichord in the Smithsonian collections. New York: Musical Heritage Society, Inc., 1973 (3 discs).
- . (Recording, with Catharina Meints and James Caldwell.) *Suite for Viola da Gamba and Basso Continuo by Marin Marais*. Cambridge Records, 1974.



- White, John H., Jr. "The Railroad Reaches California: Men, Machines, and Cultural Migration." *California Historical Quarterly*, volume LII, number 2 (summer 1973), pages 131-144.
- . "Americans Single Locomotives and the 'Pioneer.'" *Smithsonian Studies in History and Technology*, number 25 (1973), 50 pages, 53 figures.
- . "The Railway Museum: Past, Present and Future." *Technology and Culture*, October 1973, pages 599-613.
- . "Richmond Locomotive Builders." *Railroad History*, number 130 (spring 1974), pages 68-88.
- . "No Class." *Trains*, page 58, April 1974.

#### LECTURES, SYMPOSIA, REPORTS, AND CONFERENCES

- Adrosko, Rita J. "An Introduction to Household Textiles Used in America." Columbia University, New York, March 5, 1974.
- Battison, Edwin A. Patents, Productivity, and Prosperity. Sigma XI Engineering Society of Calspan, Buffalo, New York, May 1973.
- . "The Ascutney Gravity-Arch Mill Dam at Windsor, Vermont, of 1834." Annual Conference of the Society for Industrial Archeology, April 1974.
- Bedini, Silvio A. "Oriental Concepts of the Measure of Time (The Role of the Mechanical Clock in Japan and China)." Lecture (presented in absentia). The Second World Conference of the International Society for the Study of Time. Tokyo, Japan, July 1973.
- . "Thomas Jefferson and His Writing Devices." Annual meeting of the American Philosophical Society, Philadelphia, Pennsylvania. November 8, 1973.
- Boorstin, Daniel J. "How Opinion Went Public." Ohio State University, Columbus, Ohio, August 31, 1973.
- . Dedication of Bierce Library, University of Akron, Ohio, September 19, 1973.
- . "Political Revolution and Revolutions in Science and Technology." American Enterprise Institute Lecture Series: *The Bicentennial of the United States of America*. National Academy of Sciences, Washington, D.C., October 9, 1973.
- . "Bill Moyers Journal." Interview on the work of the historian for Public Educational Television. WETA, Washington, D.C., December 12, 1973.
- . "Some Possibilities in the Study of Civilization." Meeting of Indo-American Scholars, New Delhi, India, January 7-11, 1974.
- . "Technology and Democracy." American University Center, Calcutta, India, January 15, 1974.
- . "Lawyers and Outlaws in American Life." Sind Muslim Law College, Karachi, Pakistan, January 17, 1974.
- . "American Civilization at the Crossroads." American Center Auditorium, Rawalpindi, Pakistan, January 18, 1974.
- . "The Development of American Law." Bar Association of the Supreme Court, Lahore, Pakistan, January 21, 1974.
- . Opening address to Conference on Technology Transfer, Lahore, Pakistan, January 22, 1974.
- . "In Search of the Common Experience." Graduate Institute of International Studies, Geneva, Switzerland, February 6, 1974.
- . "George Washington: His Life and Afterlife." American Embassy, Dublin, Ireland, February 22, 1974.
- . "American Democracy and the American Language." Menningarstofnun Bandaríkjanna, Reykjavik, Iceland, March 13, 1974.



- . "Enlarging the Historical Experience." Faculty of Letters, University of Iceland, Reykjavik, Iceland, March 14, 1974.
- . "Technology and Democracy." University of Iceland, Reykjavik, Iceland, March 15, 1974.
- . "The Uses of History." "Triple I": Three Illinois educational associations (Curriculum Development, School of Libraries, and Audiovisual Aids), Chicago, Illinois, April 4, 1974.
- . "The Historian and the Perils of Prophecy." Towson State College, Baltimore, Maryland, April 25, 1974.
- . "What Historians Don't Write About." Town Hall of California, Los Angeles, California, May 7, 1974.
- . "The Great Negative Explorers." University of California, Los Angeles, California, May 8, 1974.
- . "The Historian and the Social Scientist." Rhode Island College, Providence, Rhode Island, June 7, 1974.
- Cannon, Walter F. "A Slab for Darwin." Victorian Counter-Culture Conference, University of South Florida, February 28, 1974.
- . "Geologists and the Physics of the Solid Earth in the 19th Century." Hunt Foundation Workshop, Carnegie-Mellon University, March 16, 1974.
- Coffee, Barbara J. "Abigail Smith Adams and Abigail Adams Smith." Colonial Dames of America, New York, N.Y., October 1, 1973.
- . "National Trust Conservation Seminar." National Trust for Historic Preservation, February 11, 1974.
- Collins, Herbert R. "Abraham Lincoln, Sketch of His Complete Life." The Washington Club, Washington, D.C., June 14, 1973.
- . "Political Campaign Collection at the Smithsonian Institution." American Political Items Collection's Meeting, Lancaster, Pa., August 18, 1973.
- . "Transportation of the American Presidents." Ginter Park Woman's Club, Richmond, Va., March 6, 1974.
- Cooper, Grace R. "American Textiles: The American Scene, 1812-1865." Midwest Antiques Forum on Technology and the Decorative Arts, Henry Ford Museum, October 9, 1973.
- Davis, Audrey B. "The Blood and Its Instruments." National Institute of Health, Bethesda, Md., January 25, 1974.
- . "Triumphing Over Disability." Rehabilitation Medicine Film and Lecture Series, National Museum of History and Technology, February 15, 1974.
- . "Technology and the Blind, A History." Rehabilitation Medicine Film and Lecture Series, National Museum of History and Technology, April 5, 1974.
- . "A History of the Handicapped." Rehabilitation Medicine Film and Lecture Series, National Museum of History and Technology, June 14, 1974.
- Davis, Audrey B., Uta C. Merzbach, and Michael M. Sokal. "Toward A National Inventory of Historic Psychological Apparatus." Sixth Annual Meeting of CHEIRON, The International Society for the History of the Behavioral and Social Sciences, Durham, N.H., June 1, 1974.
- Dirks, Katherine. "The Wet-Cleaning of Antique Cotton, Linen and Wool." Tape, script, and slide show in cooperation with the Office of Museum Programs, 1974.
- Eklund, Jon. "Ethics and Human Fallibility in Science." Physical Sciences Honors Seminar, State University College at Oneonta, N.Y., February 12, 1974.
- . "The Humanities of Science, Past and Present." Hartwick College, Oneonta, N.Y., March 21, 1974.

- Finn, Bernard S. "The American Pacific Telegraph Cable: Seventy years after." Society for the History of Technology meeting, San Francisco, Calif., December 27, 1973.
- Forman, Paul. "Design and Construction of Physical Laboratories in the Late Nineteenth and Early Twentieth Centuries." Department of the History of Science, Johns Hopkins University, January 30, 1974.
- Gardner, Paul V. "Frederick Carder, an English Glass Maker in America." English Glass Circle, London, England, June 21, 1973.
- . "The Glass of Frederick Carder." Mint Museum, Charlotte, N.C., April 5, 1974.
- Goins, Craddock R., Jr. "The Preservation and Display of Firearms." United States Army Museum Conference, Fort Sheridan, Ill., May 1974.
- . "Development of Breech-Loading Firearms in America During the First Half of the 18th Century." Annual Meeting of American Society of Arms Collectors, Atlanta, Ga., April 1974.
- Golovin, Anne C. "Material Aspects of American Culture: Domestic Furnishings." George Washington University Graduate Seminar, Smithsonian, Washington, D.C., October 1973.
- Haberstich, David. "Focus on the Smithsonian History of Photography Collection." The Maryland Institute, College of Art, Baltimore, Md., April 27, 1974.
- Hamarneh, Sami K. "Herbal Medicine." WGT5-FM Radio, Washington, D.C., August 22, 1973.
- . "Al-Biruni's Contribution to Medical Botany and Therapy." Department of Anatomy and the History of Medicine, All India Institute of Medical Sciences, New Delhi, India, November 13, 1973.
- . "Origins of the Profession and Practice of Pharmacy." Hamdard College of Pharmacy, New Delhi, India, November 17, 1973.
- . "India's Contribution to Arabic Medical Education and Practice." Ghalib Academy of the Institute of Islamic Studies, Delhi, India, November 20, 1973.
- . "Al-Biruni, Father of Arabic Pharmacy and Marine Biology." Millenary International Conference on al-Biruni, Islamabad, Pakistan, December 9, 1973.
- . "Ibn al-Quff from al-Katak to Damascus." International Conference on Bilad al-Sham (Syria), University of Jordan, Amman, Jordan, April 24, 1974.
- . "Arabic Pharmacy to the Time of al-Biruni." College of Pharmacy, University of Cairo, Egypt, May 1974.
- Harris, Michael R. "Collecting of American Pharmaceutical Antiques." International History of Pharmacy Meetings, Boston, Mass., July 22, 1973.
- . "Medical Theories in 19th Century Patent Medicine Literature." 19th Century American Medicine Class, Johns Hopkins Institute of the History of Medicine, Baltimore, Md., March 1974.
- Hindle, Brooke. "Perceived and Perceivable Ways of Technology in Antebellum America." American Historical Association, San Francisco, December 28, 1973.
- . "The Art, Science, and Telegraph of Samuel F. B. Morse." Institute of Electrical and Electronics Engineers, Washington, D.C., June 18, 1974.
- Hoffman, Howard P. "The Continental Gondola *Philadelphia*." With Philip K. Lundeberg. Annual Meeting of the Nautical Research Guild at the Maryland Historical Society, Baltimore, Md., August 5, 1973.
- . "Time Capsule 1776: The Continental Gondola *Philadelphia*." With Philip K. Lundeberg. Annual Meeting of the Organization of Military Museums of Canada, Halifax, Nova Scotia, September 24, 1973, and Annual Meeting of the Company of Military Historians, May 4, 1974.



- Hoffman, John N. "The 19th Century Technology of the Anthracite Industry." University of Delaware Fellowship Program, Eleutherian Mills Historical Library, August 16, 1973.
- Hollis, Helen R. "Musical Instruments in Works of Art at the National Gallery." National Gallery of Art, Washington, D.C., December 1973.
- . "Predecessors of the Piano" and "The Piano from 1700." Technicians Guild in the National Museum of History and Technology, April 1974.
- Hoover, Cynthia A. "Instruments and Instrumentalists." Chairman of Session at national meetings of the American Musicological Society, Chicago, November 1973.
- . "Criticism of Published Documentary Sound Recordings: A Symposium on the Theoretical and Practical Problems." Annual conference of the Association for Recorded Sound Collections, Philadelphia, March 1974.
- Jackson, Everett A. "17th and 18th Century Dentistry in America." American Dental Association — Mid Eastern Region, Harrisburg, Pa., April 1974.
- . "17th and 18th Century Dentistry in America." American Dental Association — Eastern Region Periodontist Society, University of Pennsylvania, Philadelphia, Pa., April 1974.
- . "Medicine and Dentistry in the Smithsonian." Ross County Historical Society, Chillicothe, Ohio, June 1974.
- Klapthor, Margaret B. "Dresses of the First Ladies of The White House." Frederick County Historical Society, Frederick, Md., September 18, 1973.
- . "Dolley Madison Was Born Here." Dedication of the Dolley Madison Birthplace Memorial, Greensboro, N.C., May 20, 1974.
- Leckie, Doris. "The Evolution of Cupping Instruments." University of Virginia Medical History Society, Charlottesville, Va., September 26, 1973.
- . "The Evolution of Cupping Instruments." Georgetown University Surgical Residents Grand Rounds, Washington, D.C., December 15, 1973.
- . "Cupping — A Technique of Bloodletting from Antiquity to the Twentieth Century." Man and Medicine Series, Hammelforth Health Sciences Library, George Washington University, Washington, D.C., May 8, 1974.
- Langley, Harold D. "Frontiers of Naval History." President and Regents of the Daughters of the American Revolution. National Museum of History and Technology, October 10, 1973.
- . "The Early History of Military Aviation." Air Force ROTC cadets of Georgetown and Catholic Universities. The Catholic University of America, March 29, 1974.
- Lundeberg, Philip K. "Time Capsule 1776: The Continental Gondola *Philadelphia*." With Howard P. Hoffman. Annual Meeting of the Organization of Military Museums of Canada, Halifax, Nova Scotia, September 24, 1973, and Annual Meeting of the Company of Military Historians, May 4, 1974.
- . "The Continental Gondola *Philadelphia*." With Howard P. Hoffman. Annual Meeting of the Nautical Research Guild at the Maryland Historical Society, Baltimore, Md., August 5, 1973.
- . "The Rationale for a North American Society for Oceanic History." Second Annual Symposium on Maritime History at the University of Maine (Orono), October 7, 1973.
- . "The Enigma of Samuel Colt's Submarine Battery." Annual Meeting of the Society for the History of Technology, San Francisco, Calif., December 29, 1973.
- . "Documenting a National Treasure: The Continental Gondola *Philadelphia*." Fort Concho Museum, San Angelo, Tex., April 15, 1974.
- . "Samuel Colt and His Submarine Battery." Connecticut Historical Society, Hartford, Conn., May 7, 1974.



- Mayr, Otto. "The Origins of the Clockwork Metaphor in 17th Century Philosophy." Annual meeting of the Society for History of Technology, San Francisco, Calif., December 27, 1973.
- . "Zur Geschichte des Uhren gleichnisses." Deutsches Museum, Munich, Germany, May 27, 1974, and Technische Hochschule, Darmstadt, Germany, May 31, 1974.
- . "Das Problem der Zeit und der Zeitmessung in der Physik und Philosophie der Neuzeit." University of Regensburg, Regensburg, West Germany, May 29, 1974.
- Miller, J. Jefferson, II. "Pottery and Porcelain in the American Home, 1700-1900." Museum of Fine Arts, Boston, October 2, 1973.
- . "European Porcelain of the 18th Century." Maryland Historical Society, April 16, 1974.
- Myers, Susan H. "The Community and Architecture of Capitol Hill, 1870-1900." George Washington University Graduate Seminar, Smithsonian, Washington, D.C., September 1973.
- . "Capitol Hill 1870-1900: The People and Their Homes." First Annual Conference on Washington, D.C., Historical Studies, Washington, D.C., January 1974.
- . "Domestic Architecture on Capitol Hill, 1870-1900." Capitol Hill Restoration Society, May 1974.
- Norby, Reidar. "Smithsonian's Role in Philately. International Stamp Exposition and Convention, San Francisco, December 1973.
- Odell, J. Scott. "Cleaners, Polishes, and Protective Coatings for Brass Musical Instruments." Restorer's Symposium, Germanisches Nationalmuseum, Nürnberg, Germany, May 1974.
- Ostroff, Eugene S. "Preservation of Photographs." Arizona Historical Society, Tucson, Ariz., October 23, 1973.
- . "Old Themes, New Faces." Photographic Historical Society of Rochester, N.Y., February 20, 1974.
- . "New Techniques in Conserving Old Photographs." The Royal Photographic Society, London, March 16, 1974.
- . "New Approaches to Museum Display." The Royal Photographic Society, Historical Group, London, March 20, 1974.
- . "Photographic Preservation: Modern Techniques." The Royal Photographic Society, London, March 1974.
- Post, Robert C. "Robert Davidson's *Galvani* of 1842: A Note on the Sources of Invention." School of Physics and Astronomy, University of Minnesota, Minneapolis, March 5, 1974.
- . "Historical Case Studies in Technological Innovation." Seventeenth Annual Missouri Valley Historical Conference, Omaha, Nebr., March 7, 1974.
- Roth, Rodris. "Furnishing the Victorian House, 1840-1850." Annual Meeting of The Victorian Society in America, Philadelphia, Pa., March 30, 1974.
- . "An American Celebration: The 1876 Centennial." The Board of Directors Meeting of Kenmore, Fredericksburg, Va., May 7, 1974.
- Scheele, Carl H. "Design and Production of the Federal Migratory Bird Hunting Stamps." Amarillo Art Center, Amarillo, Texas, December 1973, and The National Museum of History and Technology, Washington, D.C., February 1974.
- Schlebecker, John T., Jr. "Stockmen and Drovers during the Revolution." Pioneer American Society, Charlottesville, Va., November 10, 1973.
- . "Use of Objects in Historical Research." Theta Beta Chapter, Towson State College, Baltimore, Maryland, April 20, 1974.

- . "Keeping the Record: Historical Objects." Symposium on Agriculture, University of California at Davis, Davis, Calif., June 19, 1974.
- Vogel, Robert M. "Industrial Preservation in the U.S. and England." Cooperstown seminar and general public, Cooperstown, N.Y., July 1973.
- . "Building in the Age of Steam." (The development to 1860 of powered construction machinery and equipment.) "Building Early America." Symposium (the 250th Anniversary of the Carpenters' Company of the City and County of Philadelphia), Philadelphia, Pa., March 1974.
- Watkins, C. Malcolm. "What Good are the Artifacts After the Report is Written?" Society for Historical Archaeology, Berkeley, Calif., January 10, 1974.
- . "Ceramics in the 17th Century English Colonies." 1974 Winterthur Conference, Winterthur, Del., April 5, 1974.
- Weaver, James M. "Music at the Smithsonian." *Baroque Music at Aston Magna*, Great Barrington, Mass., June 1974.
- . "A Mozart Festival-Conference: Authenticity and Performance Problems." Conference of the American Musicological Society in conjunction with the Mozart Festival, The John F. Kennedy Center for the Performing Arts, Washington, D.C., May 1974.

#### STAFF LECTURES TO SMITHSONIAN ASSOCIATES

- Adrosko, Rita J. "Nineteenth Century Furnishing Fabrics." Decorative arts of the nineteenth century, July 24, 1973.
- Ahlborn, Richard E. "The Folk Arts of Spanish New Mexico." May 1974.
- Coffee, Barbara J. "First Ladies Hall." Christmas Weekend, December 8, 1973.
- Goins, Craddock R., Jr., "Technology in American Military History." Eight lectures, January-March 1974.
- Haberstich, David. "Contemporary Photographic Art," on "Photography as Art," December 19, 1973.
- Hindle, Brooke. "The Wooden Age in the National Museum of History and Technology." February 21, 1974.
- Klapthor, Margaret B. "The Image of the First Lady." August 27, 1973.
- Mayo, Edith P. "Women in Politics." April 16, 1974.
- Vann, Lois M. "Eighteenth and Nineteenth Century English Textiles." English antiques, March 1974.

#### ILLUSTRATED LECTURES FOR THE PUBLIC BY MEMBERS OF THE STAFF

- Alexander, Sheila. "American Ceramics from the National Collections (1880-1915)." August 4, 1973.
- Battison, Edwin A. "Patents, Productivity and Prosperity." February 5, 1974.
- Bruns, Franklin R., Jr. "Modern Philately." May 7, 1974.
- . "U.S. Postage Stamp Design (1847-1973)." September 8, 1973.
- Clain-Stefanelli, Elvira. "The History of Italy in its Coins (5th Century B.C. to the Present)." January 22, 1974.
- Clain-Stefanelli, Vladimir. "Crossroads in the Development of Money." August 18, 1973.
- Collins, Herbert R. "The Life of Lincoln." March 12, 1974.
- . "Carriages and Automobiles of the American Presidents." April 30, 1974.
- Davis, Audrey B. "From Natural History to Biology: The Growth of a Science." February 12, 1974.
- Haberstich, David E. "American Masters of Photography." June 11, 1974.
- . "New Images 1839-1973: Reviving Early Photographic Processes." October 20, 1973.



- Harris, Michael R. "American Patent Medicines, from 'Balsam of Life' to Modern Seltzer." August 25, 1973.
- . "One Is Good, Two Are Better — 19th Century Patent Medicines." April 2, 1974.
- Harris, Elizabeth M. "Rebuilding an Early American Printing Press in the Smithsonian." March 26, 1974.
- Hebert, Raymond J. "As Phony as a \$3 Bill." May 28, 1974.
- Henson, William K. "Restoration of the Harlan and Hollingsworth Engine." February 26, 1974.
- Hoffman, Howard P. "Time Capsule 1776: The Continental Gondola *Philadelphia*." July 3 and October 13, 1973.
- Hollis, Helen R. "Predecessors of the Piano." June 25, 1974.
- Jackson, Everett. "The Evolution of False Teeth." September 29, 1973.
- Kloster, Donald E. "Uniforms of the U.S. Army, 1832-1902." October 27, 1973.
- Leckie, Doris J. "The Medical Practice of Cupping: Antiquity to the 20th Century." September 22, 1973.
- Lundeberg, Philip K. "The Evolution of American Warship Construction." September 15, 1973.
- . "Time Capsule 1776: The Continental Gondola *Philadelphia*." July 3 and October 13, 1973.
- Mayo, Edith P. "Women in Politics." February 19, 1974.
- Merzbach, Uta C. "Comets and Mathematics in History." January 15, 1974.
- . "Pascal and Technology." July 28, 1973.
- Miller, J. Jefferson, II. "American Pottery and Porcelain from Colonial Times to 1900." May 21, 1974.
- Multhauf, Robert P. "America's Wooden Age." May 14, 1974.
- Norby, Reidar. "New Zealand: A Nation's History in Postage Stamps." July 21, 1973.
- . "Smithsonian: Stamp Collectors' Mecca." October 6, 1973.
- Seale, William. "Style and Taste in Victorian Interiors." June 4, 1974.
- Scheele, Carl H. "Production and Design of Federal Duck Stamps." January 8, 1974.
- Sivowitch, Eliot N. "Musical Broadcasting in the Nineteenth Century." January 29, 1974.
- Walker, Paul E. "Invention of Time." April 9, 1974.
- Warner, Deborah J. "Stars and Constellations." April 23, 1974.

#### OFFICE OF AMERICAN STUDIES

- Washburn, Wilcomb E. "The American Indian." *The American Annual, 1974: Yearbook of the Encyclopedia Americana*, 52nd edition, pages 63-69. New York: Grolier Incorporated, 1974.
- , editor. *The American Indian and the United States: A Documentary History*, 4 volumes, 3119 pages. New York: Random House, 1973.
- . "James Adair's 'Noble Savages.'" Pages 91-120 in Lawrence H. Leder, editor, *The Colonial Legacy*, volume III of *Historians of Nature and Man's Nature*. New York: Harper & Row, 1973.

#### MUSEUM PROGRAMS

##### CONSERVATION-ANALYTICAL LABORATORY

- McMillan, E. "Notes on Paper." *Bulletin, International Institute for Conservation—American Group*, volume 14, number 1 (1973), pages 75-77.



Miller, B. A., and J. S. Olin "Analysis of French, English and Scottish Pewter Measures Using Energy Dispersive X-ray Fluorescence Analysis." *Bulletin of the American Institute for Conservation of Historic and Artistic Works*, volume 14, number 2 (April 1974).

Organ, R. M. [Review in] *Studies in Conservation*, volume 18 (1973), pages 189-194, of H. J. Plenderleith and A. E. Werner, *The Conservation of Antiquities and Works of Art*, London, 1971.

———. "Examination of the Ardagh Chalice — A Case History," pages 238-271 in W. J. Young, editor, *Application of Science in Examination of Works of Art*. Boston Museum of Fine Arts, 1973.

### *Lectures and Seminars*

Organ, R. M., Presentation to Joint Hearings before the Special Sub-Committee on Arts and Humanities (Chairman Senator Pell) on S796 and S2137, July 19, 1973.

———. Presentation to Seminar held by New England Document Center, Osgood Hill, October 3, 1973.

———. Conservation Orientation Series, #21-40, #61-80, October 18, 1973, through March 14, 1974.

———. "The Philosophy of Conservation," AAM Seminar on Conservation, New York, January 28-29, 1974.

———. Lecture on CAL to Underwater Archaeology Association (Group of Underwater Archaeologists), February 17, 1974.

———. A Seminar at Hirshhorn Museum and Sculpture Gallery concerning the care in moving of objects being brought into the new building and unpacking, April 11, 1974.

———. Lecture to Annual Meeting of AIC on "The National Conservation Institute—A Personal Concept," May 30, 1974.

### SMITHSONIAN INSTITUTION LIBRARIES

Goodwin, J. "Current Bibliography in the History of Technology (1971)." *Technology and Culture*, volume 14 (1973), pages 175-286.

Shank, R. "Books of Science." *Science Year: The World Book Science Annual*, 1974. Chicago: Field Enterprises (1973), pages 266-268.

Olson, E., E. Warner, V. Pings, E. F. Sloan, and R. Orr. "Relative Use Patterns of Libraries Serving Medical School Populations," in R. Cheshire, editor, *Information in the Health Sciences: Working to the Future*. Cleveland: Case-Western Reserve University Press, 1973.

Walker, W. "Some Notes on the N Classification." *ARLIS Newsletter*, volume 2, number 3 (April 1974), pages 33-34.

### LECTURES

Goodwin, J. "The History of the Library of Congress and Its Buildings." At the Library of Congress to the Arlington (Va.) Senior Citizens Club, November 14, 1973.

Shank, R. with Madeline Henderson (National Bureau of Standards). Computers and Networks in Federal Libraries." American Association for the Advancement of Science Annual Meeting, San Francisco, California, February 26, 1974.

## PUBLIC SERVICE

### DIVISION OF PERFORMING ARTS

Williams, Martin. *The Smithsonian Collection of Classic Jazz* (book of jazz history and annotations to the recordings collection). Smithsonian Institution, 1973.

- . "Tales of Tarzan and More" (a review of five periodicals devoted to Edgar Rice Burroughs). *Washington Post*, January 5, 1974.
- . "Happy Birthday to the Duke" (an appreciation on Ellington). *Washington Star-News*, April 28, 1974.
- . "Continental Comics" (a review of four adventures of Herge's Tin Tin). *Washington Post Book World*, May 19, 1974.
- . "On Monsters, Pilots, Tarzan and other Superheros" (a review of *The Comic Book* book). *Washington Post*, June 8, 1974.
- . "Some Remarks on Johnny Gruelle and Raggedy Ann" in *Children's Literature: The Great Excluded*, volume 3. Storrs: University of Connecticut, 1974.
- . "Pitchin' Boggie" (record annotations). Milestone MSP 2018.
- . "Ornette Coleman: Twins" (record annotations). Atlantic LP 1588.
- . "The Modern Jazz Quartet: Plastic Dreams" (record annotations). Atlantic LP 1589.
- . "The Art of John Coltrane" (record annotations). Atlantic LP SD2-313.

#### READING IS FUNDAMENTAL, INC.

*How to Organize an Effective Program: A RIF Handbook* (in looseleaf form, organized in eight sections), copyright 1974.  
*RIF Newsletter*, volume 3, issue 3 (September 1973), 12 pages; volume 4, issue 1 (January 1974), 12 pages.

## NATIONAL GALLERY OF ART

- Edelstein, J. M. *Wallace Stevens: A Descriptive Bibliography*. Pittsburgh: University of Pittsburgh Press, 1974.
- . "Petrarch: Honored as Europe's First Truly Modern Man." *Smithsonian*, volume 5, number 1 (April 1974).
- . "The Poet as Reader: Wallace Stevens and His Books." *The Book Collector*, London, volume 23, number 1 (Spring 1974).
- . [Review] *German Book Illustration of the Gothic Period and Early Renaissance (1460-1530)* by Richard Muther. *The Papers of the Bibliographical Society of America*, volume 68, number 1 (January-March 1974).
- . News, Notes, and Queries Editor of *The Papers of the Bibliographical Society of America*.
- Feller, Robert L. "Thermochemically Activated Oxidation: Mother Nature's Book Burning." *P.L.A. Bulletin* (Pennsylvania Library Association), November 1973, pages 232-242.
- . "Rubens's The Gerbier Family: Technical Examination of the Pigments and Paint Layers." Pages 54-74 in 1973 *Studies in the History of Art*. Washington: National Gallery of Art, 1973.
- . "Induction Time and the Autoxidation of Organic Compounds." *Bulletin of the American Institute for Conservation*, volume 14, number 2 (1974), pages 142-151.
- Keisch, Bernard. "A Detector for Efficient Backscatter Mossbauer Effect Spectroscopy." *Nuclear Instruments and Methods*, volume 104 (1972), page 237.
- Keisch, B., and R. C. Callahan. "Rubens's The Gerbier Family: Investigation by Lead Isotope Mass Spectrometry." Pages 25-78 in 1972 *Studies in the History of Art*. Washington: National Gallery of Art, 1973.
- Lewis, Douglas. "La datazione della Villa Corner a Piombino Dese." *Bolletino del C.I.S.A.* Vicenza, volume 14 (1972), pages 381-393.

- . [Review] *Carlo Maderno and Roman Architecture 1580-1630* by Howard Hibbard. *Art Journal*, volume 32, number 3 (1973), pages 356-364.
- . "Una decina di documenti del Longhena." *Arte Veneta*, volume 27 (1973).
- . [Review] *Baldassare Longhena*, by Giuseppe Cristinelli. *Arte Veneta*, volume 27 (1973).
- Parkhurst, Charles. "Camillo Leonardi and the Green-Blue Shift in Sixteenth-Century Painting." *Intuition und Kunstweisenschaft, Festschrift fur Hanns Swarzenski*, Gebr. Mann Verlag, Berlin, 1973, pages 419-425.
- Robison, Andrew. "Piranesi's Ship on Wheels." *Master Drawings*, volume XI, number 4 (winter 1973), pages 389-392.
- . "The Albrizzi-Piazzetta Tasso." *Non Solus*, number 1, pages 1-12.
- . Nine reviews of various books on prints and drawings. *Library Journal*, volumes 98 and 99.
- Russell, H. Diane. "Books on Two Master Etchers of the Seicento." *The Washington Print Club Newsletter*, March-April 1974.
- . "Heinemann Drawings at the Pierpont Morgan Library." *Master Drawings*, volume 10 (fall 1973).
- Schneider, Laura. "The Freer Canteen." Pages 137-156 in *Ars Orientalis*, volume 9, Freer Gallery of Art Fiftieth Anniversary Volume, 1973.

#### LECTURES

- Cain, J. Fred. "Georgia O'Keeffe: A Survey of Her Painting Career." American University, December 1973.
- Keisch, Bernard. "Mossbauer Effect Spectroscopy without Sampling: Application to Art and Archaeology." 4th Annual Conference of Chemistry and Archaeology, ACS Meeting, Dallas, Texas, April 9-10, 1973.
- . "Nuclear Applications of the National Gallery of Art Research Project: Seven Years of Progress." International Conference on the Application of Nuclear Methods in the Field of Works of Art, Rome, May 24-29, 1973.
- . "Bridging the Culture Gap: Applications of Nuclear Science to Art." Gordon Research Conference, Nuclear Chemistry Division, New London, New Hampshire, June 28, 1973.
- Lewis, Douglas. "Palladio and His Patrons." Amherst College, October 1973.
- . "Palladio's Unpublished Autograph Plans for Caldogno and Maser, 1548-1549." Symposium on Venetian Art, The Johns Hopkins University, March 1974.
- . "National Gallery Sculpture: The New Amid the Old." National Gallery of Art, June 1974.
- Oberhuber, Konrad. "The School of Athens." Lincoln, Massachusetts.
- Parkhurst, Charles. "Color in Sixteenth-Century Painting." University of North Carolina, Chapel Hill, February 1974.
- . "The Science and Art of Color in the Seventeenth Century, Some Origins and Consequences." Duke University, February 1974.
- . Juror, Norfolk Arts Festival in July 1973 and Tenth Maryland Juried Art Exhibition, The Academy of the Arts, Easton, Maryland, April 1974.



# APPENDIX 9. Visitors to the Smithsonian Institution in Fiscal Year 1974

Month	Smithsonian Institution Building	Arts & Industries Building	Natural History Building	Air & Space Building	Freer Gallery of Art	History & Technology Building
July	98,846	326,980	384,145	236,056	26,808	737,182
August	105,913	311,696	424,369	235,326	28,703	729,237
September	42,610	110,972	142,990	62,475	18,250	329,734
October	52,350	140,212	203,094	83,610	17,203	430,298
November	46,734	121,816	273,088	77,721	15,443	421,160
December	31,520	73,221	133,081	43,101	10,679	256,651
January	33,589	60,217	126,316	39,407	13,997	247,001
February	27,897	71,655	119,506	40,262	11,260	247,931
March	44,786	129,628	212,199	62,403	16,025	438,027
April	79,723	224,329	356,932	136,275	23,280	688,046
May	81,081	235,486	369,431	125,600	17,246	676,883
June	94,602	234,519	322,543	143,362	20,452	648,077
Total	739,651	2,040,731	3,067,694	1,285,598	219,346	5,850,227

	Fine Arts & Portrait Galleries	Renwick Gallery	National Zoological Park	Anacostia Neighborhood Museum	Totals
July	31,828	11,510	743,132	4,372	2,600,859
August	38,315	14,634	667,524	641 <sup>1</sup>	2,556,358
September	22,131	12,979	348,350	4,346	1,094,837
October	25,204	14,082	397,179	8,201	1,371,433
November	26,865	20,756	362,423	7,294	1,373,300
December	21,137	11,914	83,941	7,249	672,449
January	24,338	17,907	79,673	4,190	664,635
February	26,470	11,939	204,839	13,125	774,884
March	29,971	14,465	367,228	10,850	1,325,582
April	23,540	15,941	717,441	7,000	2,272,507
May	28,525	15,001	726,207	4,874	2,280,334
June	31,163	14,544	613,932	4,341	2,127,535
Total	329,487	175,672	5,311,869	76,483 <sup>2</sup>	19,096,758 <sup>3</sup>

<sup>1</sup> This represents visitors to the Museum; the mobile unit was not in use.

<sup>2</sup> 53,536 adults and children visited museum; the mobile unit was viewed by 22,947 children at their schools.

<sup>3</sup> This total does not include 6,100,000<sup>a</sup> visitors — 4,800,000 who visited the Smithsonian Institution Traveling Exhibition Service's displays in museums and educational institutions throughout the United States and Canada and 1,300,000 persons who viewed the 1973 American Folklife Festival.

SECRETARY'S OFFICE AND RELATED ACTIVITIES

<b>THE SECRETARY</b> .....	<b>S. DILLON RIPLEY</b>
Executive Assistant .....	Dorothy Rosenberg
<b>Under Secretary</b> .....	<b>Robert A. Brooks</b>
Administrative Officer .....	John Motheral
Director, Agenda Office .....	Robert L. Farrell
<b>Assistant Secretary for Science</b> .....	<b>David Challinor</b>
<b>Assistant Secretary for History and Art</b> ..	<b>Charles Blitzer</b>
<b>Assistant Secretary for Public Service</b> ...	<b>Julian Euell</b>
<b>Assistant Secretary for Museum Programs</b> <b>(Director, United States National Museum)</b>	<b>Paul N. Perrot</b>
<b>Treasurer</b> .....	<b>T. Ames Wheeler</b>
Assistant Treasurer (Accounting) .....	Betty J. Morgan
Assistant Treasurer (Programming and Budget) .....	John F. Jameson
Chief Accountant .....	Allen S. Goff
Business Manager .....	Richard Griesel
Director, Smithsonian Museum Shops ...	William W. Rowan III
Director, Belmont Conference Center ....	Joanne S. Baker Kugel
<b>General Counsel</b> .....	<b>Peter G. Powers</b>
Assistant General Counsels .....	Alan D. Ullberg
	George S. Robinson
	L. Wardlaw Hamilton
	Suzanne D. Murphy
	Marie C. Malaro
<b>Director of Support Activities</b> .....	<b>Richard L. Ault</b>
<i>Special Projects, Office of the Secretary</i>	
Special Assistant to the Secretary .....	Richard H. Howland
Special Assistant to the Secretary .....	Margaret Gaynor
Director, Office of Development .....	Lynford E. Kautz
Editor, Joseph Henry Papers .....	Nathan Reingold
Director, Office of Equal Opportunity ...	Archie D. Grimmett
Curator, Smithsonian Institution Building	James M. Goode
Honorary Research Associates .....	Charles G. Abbot, <sup>1</sup> Secretary Emeritus
	Leonard Carmichael, <sup>2</sup> Secretary Emeritus
	Paul H. Oehser
	Alexander Wetmore, Secretary Emeritus
Honorary Fellow .....	John A. Graf <sup>3</sup>

<sup>1</sup> Died December 17, 1973.

<sup>2</sup> Died September 16, 1973.

<sup>3</sup> Died November 24, 1973.

## SCIENCE

<b>Assistant Secretary</b> .....	<b>David Challinor</b>
<b>Deputy Assistant Secretary</b> .....	<b>Michael R. Huxley</b>
<b>Executive Officer</b> .....	<b>Harold J. Michaelson</b>

### *CENTER FOR THE STUDY OF MAN*

<b>Director</b> .....	<b>Sol Tax</b>
<b>Program Coordinator</b> .....	<b>Sam Stanley</b>

### *CHESAPEAKE BAY CENTER FOR ENVIRONMENTAL STUDIES*

<b>Director</b> .....	<b>Francis S. L. Williamson</b>
<b>Assistant Director</b> .....	<b>J. Kevin Sullivan</b>
<b>Administrative Officer</b> .....	<b>Donald L. Wilhelm</b>
<b>Administrative Assistant, Rhode River Research Program</b> .....	<b>Archibald O. Mason, Jr.</b>
<b>Resident Manager</b> .....	<b>Robert E. Ayers</b>
<b>Resident Manager, Poplar Island</b> .....	<b>Leroy Shores</b>

#### **Scientific Staff:**

<b>Veta Clements</b>	<b>Patricia Mehlop</b>
<b>Robert L. Cory (U.S.G.S.)</b>	<b>Joseph Miklas</b>
<b>Claude Crawford (J.H.U.)</b>	<b>Sheila Minor</b>
<b>Maria Faust</b>	<b>Michael Read</b>
<b>Deborah H. Ford</b>	<b>Michael Redding</b>
<b>Michael Hargedon</b>	<b>Barbara Rice</b>
<b>Daniel Higman</b>	<b>Bill Schaffner</b>
<b>Gregory J. Loeffler</b>	<b>Louis Schenker</b>
<b>Martha McCullough<sup>4</sup></b>	<b>Susan Weck Welles<sup>4</sup></b>
<b>James McKinney</b>	<b>Tung Lin Wu</b>

#### *Education*

<b>Education Coordinator</b> .....	<b>John Falk</b>
<b>Education Specialist</b> .....	<b>Lynne Mormann</b>

#### *Information Transfer*

<b>Environmental Planning Specialist</b> .....	<b>David P. Miller</b>
<b>Environmental Information Specialist</b> ...	<b>Marjorie Beane</b>
<b>Information Specialist</b> .....	<b>Dorothy Kinsman</b>

### *FORT PIERCE BUREAU*

<b>Director</b> .....	<b>H. Adair Fehlmann</b>
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<b>Deputy Director</b> .....	<b>Melvin B. Zisfein</b>
<b>Executive Officer</b> .....	<b>John Whitelaw</b>
<b>Administrative Officer</b> .....	<b>M. Antoinette Smith</b>

#### *Department of Aeronautics*

<b>Assistant Director</b> .....	<b>Donald S. Lopez</b>
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#### *Department of Astronautics*

<b>Assistant Director</b> .....	<b>F. C. Durant III</b>
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<sup>4</sup> Resigned.



<i>Department of Science and Technology</i>	
Assistant Director .....	Howard Wolko
<i>Center for Earth and Planetary Studies</i>	
Research Director .....	Dr. Farouk El-Baz
<i>Presentations and Educational Division</i>	
Chief .....	Von Del Chamberlain
<i>Exhibits Division</i>	
Chief .....	Francis A. Baby
Chief, Audiovisual Unit .....	Hernan Otano
Chief, Design Unit .....	Robert Widder
Chief, Illustration Unit .....	Peter Copeland
Chief, Production Unit .....	Frank Nelms
<i>Preservation, Restoration, and Storage Division</i>	
Chief .....	Donald Merchant
<i>Library Branch</i>	
Librarian .....	Catherine D. Scott

#### NATIONAL MUSEUM OF NATURAL HISTORY

Director .....	Porter M. Kier
Assistant Director .....	James F. Mello
Special Assistant to Director .....	Paul K. Knierim <sup>5</sup>
Chief of Exhibits .....	Harry T. Hart
Coordinator, Office of Education .....	Joan Madden <sup>6</sup>
Acting Chief, ADP Program .....	T. Gary Gautier <sup>7</sup>
Building Manager .....	Donald L. Case <sup>8</sup>
Administrative Officer .....	John C. Townsend

#### ANTHROPOLOGY

Chairman .....	Clifford Evans
Senior Archeologist .....	Waldo R. Wedel
Senior Ethnologists .....	John C. Ewers
	Saul H. Riesenbergs
Archivist .....	Herman J. Viola
Collections Manager .....	George E. Phebus
<i>Latin American Anthropology</i>	
Curator .....	Clifford Evans
Associate Curators .....	William H. Crocker
	Robert M. Laughlin
<i>Old World Anthropology</i>	
Curators .....	Gordon D. Gibson
	Gus W. Van Beek
	Eugene I. Knez
	William B. Trousdale

<sup>5</sup> Retired June 14, 1974.

<sup>6</sup> Appointed September 16, 1973.

<sup>7</sup> Appointed April 30, 1973.

<sup>8</sup> Appointed February 3, 1974.

## *North American Anthropology*

Curator ..... William C. Sturtevant  
Associate Curators ..... William W. Fitzhugh  
Dennis M. Stanford

## *Physical Anthropology*

Curator ..... J. Lawrence Angel  
Associate Curators ..... Donald J. Ortner  
Lucile E. St. Hoyme  
Douglas H. Ubelaker  
Organic Chemist ..... David W. Von Endt

## Research Associates, Collaborators, and Affiliated Scientists:

Hans-Georg Bandi (Archeology)	Olga Linares (Archeology)
W. Montague Cobb, Physical Anthropology)	Betty J. Meggars (Archeology)
T. Aidan Cockburn (Physical Anthropology)	George S. Metcalf (Archeology)
Henry B. Collins (Archeology)	Walter G. Putschar (Physical Anthropology)
Wilson Duff (Ethnology)	Victor A. Nunez Regueiro (Archeology)
Don D. Fowler (Archeology)	Owen Rye (Archeology)
Sister Inez Hilger (Ethnology)	Wilhelm G. Solheim (Archeology)
C. G. Holland (Archeology)	T. Dale Stewart (Physical Anthropology)
Neil M. Judd (Archeology)	Matthew W. Stirling (Archeology)
Richard T. Koritzer (Physical Anthropology)	Robert Stuckenrath (Archeology)
Ralph K. Lewis (Archeology)	Mildred Mott Wedel (Archeology & Ethnohistory)
Michael Liebman (Physical Anthropology)	Theodore A. Wertime (Archeology)
	Edwin F. Wilmsen (Archeology)

## BOTANY

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Senior Botanists ..... Richard S. Cowan  
Lyman B. Smith

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Curators ..... F. Raymond Fosberg  
John J. Wurdack  
Associate Curators ..... Dan H. Nicolson  
Robert W. Read  
Marie-Hélène Sacht  
Stanwyn G. Shetler  
Beryl B. Simpson  
Laurence E. Skog<sup>9</sup>  
Dieter C. Wasshausen

## *Ferns*

Associate Curator ..... David B. Lellinger

## *Grasses*

Curator ..... Thomas R. Soderstrom

## *Cryptogams*

Curators ..... Mason E. Hale, Jr.  
Harold E. Robinson  
Associate Curator ..... Arthur L. Dahl<sup>10</sup>

<sup>9</sup> Appointed September 16, 1973.

<sup>10</sup> Resigned June 14, 1974.

## *Palynology*

Associate Curator ..... Joan W. Nowicke

## *Plant Anatomy*

Curators ..... Edward S. Ayensu  
Richard H. Eyde

## Research Associates, Collaborators, and Affiliated Scientists<sup>11</sup>:

Paul S. Conger (Diatomaceae)	Kittie F. Parker (Compositae)
José Cuatrecasas (Flora of Tropical South America)	Clyde F. Reed (Ferns)
James A. Duke (Flora of Panama)	James L. Reveal (Ferns)
Marie L. Farr (Fungi)	Velva E. Rudd (Leguminosae)
Aaron Goldberg (Phanerogams)	Marie L. Solt (Melastomataceae)
Charles R. Gunn (Seeds)	Frans A. Stafleu (Phanerogams)
William H. Hathaway (Flora of Central America)	William L. Stern (Plant Anatomy)
Paul L. Lentz (Fungi)	John A. Stevenson (Fungi)
Elbert L. Little, Jr. (Dendrology)	Edward E. Terrell (Phanerogams)
Alicia Lourteig (Neotropical Botany)	Francis A. Uecker (Fungi)
	Egbert H. Walker (Myrsinaceae, East Asian Flora)

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Collections Manager ..... Gary F. Hevel  
Senior Entomologists ..... J. F. Gates Clarke  
Karl V. Krombein

## *Neuropteroids and Diptera*

Curator ..... Oliver S. Flint, Jr.  
Associate Curator ..... Richard W. Baumann

## *Lepidoptera*

Curators ..... Donald R. Davis  
W. Donald Duckworth  
Associate Curator ..... William D. Field

## *Coleoptera*

Associate Curators ..... Terry L. Erwin  
Paul J. Spangler

## *Hemiptera*

Associate Curator ..... Richard C. Froeschner

## *Myriapoda and Arachnida*

Curator ..... Ralph E. Crabill, Jr.

## Research Associates, Collaborators, and Affiliated Scientists:

Charles P. Alexander (Diptera)	W. L. Jellison (Siphonaptera, Anoplura)
Doris H. Blake (Coleoptera)	Harold F. Loomis (Myriapoda)
Franklin S. Blanton (Diptera)	C. F. W. Muesebeck (Hymenoptera)
Frank L. Campbell (Insect Physiology)	George W. Rawson (Lepidoptera)
Oscar L. Cartwright (Coleoptera)	Mary Ripley (General Entomology)
K. C. Emerson (Mallophaga)	Robert Traub (Siphonaptera)
John G. Franclemont (Lepidoptera)	David Wooldridge (Coleoptera)
Harry Hoogstraal (Medical Entomology)	

## INVERTEBRATE ZOOLOGY

Chairman ..... David L. Pawson  
Senior Zoologists ..... Fenner A. Chace, Jr.  
Horton H. Hobbs, Jr.  
Harald A. Rehder

<sup>11</sup> National fungus collections are curated by Department of Agriculture staff.



## *Crustacea*

Curators ..... J. Laurens Barnard  
Thomas E. Bowman  
Roger F. Cressey  
Louis S. Kornicker  
Raymond B. Manning

## *Echinoderms*

Curators ..... David L. Pawson  
Klaus Ruetzler  
Visiting Research Associate ..... Frederick H. C. Hotchkiss

## *Worms*

Curators ..... W. Duane Hope  
Meredith L. Jones  
Marian H. Pettibone  
Associate Curator ..... Mary E. Rice

## *Mollusks*

Curators ..... Clyde F. E. Roper  
Joseph Rosewater  
Associate Curator ..... Joseph P. E. Morrison  
Visiting Curator ..... David H. Stansbery

## Research Associates, Collaborators, and Affiliated Scientists:

Frederick M. Bayer (Echinoderms)	Roman Kenk (Worms)
S. Stillman Berry (Mollusks)	J. Ralph Lichtenfels (Worms)
J. Bruce Bredin (Biology)	Anthony J. Provenzano, Jr. (Crustacea)
Isabel C. Canet (Biology)	Waldo L. Schmitt (Marine Invertebrates)
Ailsa M. Clark (Echinoderms)	Frank R. Schwengal (Mollusks)
Elisabeth Deichmann	I. G. Sohn (Crustacea)
Mary Gardiner (Echinoderms)	Donald F. Squires (Echinoderms)
John C. Harshbarger (Marine Invertebrates)	Gilbert L. Voss (Mollusks)
Lipke B. Holthuis (Crustacea)	Austin B. Williams (Crustacea)

## MINERAL SCIENCES

Chairman ..... William G. Melson  
Mineralogist ..... George S. Switzer  
Collections Manager ..... Harold H. Banks, Jr.

## *Meteorites*

Curators ..... Roy S. Clarke, Jr.  
Brian H. Mason  
Geochemists ..... Kurt Fredriksson  
Robert F. Fudali

## *Mineralogy*

Curator ..... Paul E. Desautels  
Associate Curator ..... John S. White, Jr.  
Crystallographers ..... Daniel E. Appleman<sup>12</sup>  
Joel E. Arem<sup>13</sup>

## *Petrology and Volcanology*

Curator ..... Thomas E. Simkin

## *Physical Sciences Laboratory*

Chemists ..... Eugene Jarosewich  
Joseph A. Nelen

<sup>12</sup> Appointed February 17, 1974.

<sup>13</sup> Resigned September 14, 1973.

Research Associates, Collaborators, and Affiliated Scientists:

Howard J. Axon (Meteorites)	Peter Leavens (Mineralogy)
Vagn F. Buchwald (Meteorites)	T. R. McGetchin (Petrology)
Tomas Feininger (Petrology)	Rosser Reeves (Mineralogy)
John J. Gurney (Petrology)	Arthur Roe (Mineralogy)
Edward P. Henderson (Meteorites)	Geoffrey Thompson (Petrology)
John B. Jago (Mineralogy)	Harry Winston (Mineralogy)

PALEOBIOLOGY

Chairman .....	Richard E. Grant
Collections Manager .....	Frederick J. Collier

INVERTEBRATE PALEONTOLOGY

Curators .....	Richard M. Benson Richard S. Boardman Martin A. Buzas Alan H. Cheetham Richard Cifelli Richard E. Grant Erle G. Kauffman Thomas R. Waller
Geologist .....	Kenneth M. Towe

VERTEBRATE PALEONTOLOGY

Curators .....	Nicholas Hotton III Clayton E. Ray
Associate Curator .....	Robert J. Emry
<i>Paleobotany</i>	
Curator .....	Walter H. Adey
Associate Curators .....	Leo J. Hickey Francis M. Hueber

*Sedimentology*

Curator .....	Jack W. Pierce
Geological Oceanographer .....	Daniel J. Stanley
Geologist .....	Ian G. Macintyre

Research Associates, Collaborators, and Affiliated Scientists:

Arthur J. Boucot	Venka V. Macintyre
Anthony C. Coates	Sergius H. Mamay
G. Arthur Cooper	James F. Mello
Raymond Douglass	Robert B. Neuman
J. Thomas Dutro	William A. Oliver, Jr.
Robert M. Finks	Storrs L. Olson
C. Lewis Gazin	Axel A. Olsson
Mackenzie Gordon, Jr.	John Pojeta, Jr.
Joseph E. Hazel	Norman F. Sohl
John W. Huddle	Steven M. Stanley
Ralph W. Imlay	Margaret Ruth Todd
Jeremy B. C. Jackson	Astrid Witmer
Harry S. Ladd	Wendell P. Woodring
N. Gary Lane	Ellis P. Yochelson
Kenneth E. Lohman	

*Research Associates, Collaborators, and Affiliated Scientists—cont.*

Paleobotany .....	Patricia J. Adey David Child
Sedimentology .....	Gilbert Kelling Frederic R. Siegel
Vertebrate Paleontology .....	Douglas Emlong Charles A. Reppening Frank C. Whitmore, Jr.

VERTEBRATE ZOOLOGY

Chairman .....	Robert H. Gibbs, Jr.
----------------	----------------------

*Fishes*

Curators .....	Robert H. Gibbs, Jr. Ernest A. Lachner Victor G. Springer Stanley H. Weitzman
Associate Curator .....	William R. Taylor

*Reptiles and Amphibians*

Associate Curators .....	W. Ronald Heyer George R. Zug
--------------------------	----------------------------------

*Birds*

Curators .....	George E. Watson Richard L. Zusi
Associate Curator .....	Paul Slud

*Mammals*

Curators .....	Charles O. Handley, Jr. Henry W. Setzer
Associate Curator .....	Richard W. Thorington, Jr.
Assistant Curator .....	James G. Mead

Research Associates, Collaborators, and Affiliated Scientists:

John W. Aldrich (Birds)	Richard Highton (Reptiles, Amphibians)
Ronald Gail Altig (Reptiles, Amphibians)	Marshall A. Howe (Birds)
Richard C. Banks (Birds)	Philip S. Humphrey (Birds)
William Belton (Birds)	Crawford G. Jackson, Jr. (Reptiles, Amphibians)
James P. Bogart (Reptiles, Amphibians)	George J. Jacobs (Reptiles, Amphibians)
James E. Böhlke (Fishes)	Clyde J. Jones (Mammals)
Robert L. Brownell, Jr. (Mammals)	E. V. Komarek (Mammals)
Howard W. Campbell (Reptiles, Amphibians)	Roxie C. Laybourne (Birds)
Leonard Carmichael, Jr. (Psychology, Animal Behavior) <sup>14</sup>	Richard H. Manville (Mammals)
Daniel M. Cohen (Fishes)	J. A. J. Meester (Mammals)
Bruce B. Collette (Fishes)	Egardo Mondolfi (Mammals)
Robert K. Enders (Mammals)	Russell E. Mumford (Mammals)
Carl H. Ernst (Reptiles, Amphibians)	Storrs L. Olson (Birds)
Herbert Friedmann (Birds)	Braulio Orejas-Miranda (Reptiles)
Crawford H. Greenewalt (Birds)	John Paradiso (Mammals)
Arthur M. Greenhall (Mammals)	William F. Perrin (Mammals)
	Dioscoro S. Rabor (Birds)

<sup>14</sup> Died September 16, 1973.



Rudolfo Ruibal (Reptiles, Amphibians)	Stephen G. Tilley (Reptiles, Amphibians)
G. Carleton Ray (Mammals)	John C. Weske (Birds)
S. Dillon Ripley (Birds)	Alexander Wetmore (Birds)
William Schevill (Mammals)	Ralph E. Wetzel (Mammals)
Leonard P. Schultz (Fishes)	Don E. Wilson (Mammals)

NATIONAL ZOOLOGICAL PARK

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Deputy Director .....	Edward Kohn
Assistant Director for Conservation .....	John Perry
Assistant Director for Visitor Services ...	Warren J. Iliff
Chief, Office of Education and Information .....	(Open)
Chief, Office of Graphics and Exhibits ...	Robert E. Mulcahy
Chief, Office of Protective Services .....	Joseph J. McGarry
Captain, NZP Police .....	Samuel L. Middleton, Jr.
Chief, Health and Safety Unit .....	Anthony S. Kadlubowski
General Curator, Office of Animal Management .....	Jaren G. Horsley
Mammalogist, Office of Animal Management .....	Harold J. Egoscue
Associate Curator, North Mammal Unit..	Larry R. Collins
Curator, Central Mammal Unit .....	William A. Xanten, Jr.
Assistant Curator, South Mammal Unit ..	Miles S. Roberts
Curator, Birds Unit .....	Guy A. Greenwell
Assistant Curator, Reptiles Unit .....	Michael L. Davenport
Chief, Commissary and Support Unit ....	Moses Benson
Scientist-in-Charge, Office of Zoological Research .....	John F. Eisenberg
Chief, Office of Health and Pathology ...	Clinton W. Gray
Pathologist, Office of Health and Pathology .....	Robert M. Sauer
Chief, Office of Construction Management .....	Robert C. Engle
Chief, Office of Facilities Management ...	Emanuel Petrella
Chief, Maintenance Unit .....	Robert F. Ogilvie
Chief, Grounds Unit .....	Samuel W. Gordon
Chief, Services Unit .....	Carl F. Jackson
Chief, Transportation Unit .....	Robert T. Chesley
Chief, Property and Procurement Unit ...	James E. Deal
Chief, Office of Management Services ...	Joe W. Reed
Associates in Ecology .....	S. Dillon Ripley
	Lee M. Talbot
Research Associates .....	Jean Delacour
	Bernard C. Zook
	James A. Sherburne
Collaborators .....	Leonard J. Goss
	Carlton M. Herman
	Paul Leyhausen
	Charles R. Schroeder

# OFFICE OF INTERNATIONAL AND ENVIRONMENTAL PROGRAMS

<b>Director</b> .....	<b>Wymberley Coerr<sup>15</sup></b>
<b>Deputy Director</b> .....	<b>William L. Eilers</b>
<b>Program Director, AID Environmental Impact Studies</b> .....	<b>Peter H. Freeman</b>
<b>Program Director, AID Waterborne Diseases Study</b> .....	<b>Curt R. Schneider</b>
 <i>Oceanography and Limnology Program</i>	
<b>Director</b> .....	<b>Robert P. Higgins</b>
<b>Deputy Director</b> .....	<b>Catherine J. Kerby</b>
<b>Program Limnologist</b> .....	<b>C. Willard Hart, Jr.<sup>16</sup></b>
<b>Director, Smithsonian Oceanographic Sorting Center</b> .....	<b>Betty J. Landrum</b>
<b>Director, Mediterranean Marine Sorting Center</b> .....	<b>Ernani G. Menez</b>
 <i>Ecology Program</i>	
<b>Director</b> .....	<b>Dale W. Jenkins<sup>17</sup></b>
<b>Acting Director</b> .....	<b>William L. Eilers<sup>18</sup></b>
<b>Deputy Director</b> .....	<b>Lee M. Talbot<sup>19</sup></b>
<b>Director, Center for Natural Areas</b> .....	<b>Stephen L. Keiley</b>
<b>Director, Peace Corps Environmental Program</b> .....	<b>Robert K. Poole</b>
<b>Project Manager, Environmental Inventories Project</b> .....	<b>William C. Jolly</b>
<b>Project Manager, Atlantic Coastal Plain Study</b> .....	<b>Anne LaBastille</b>
<b>Project Manager, Johnston Atoll Study</b> ..	<b>A. Binion Amerson, Jr.</b>
 <i>Center for Short-Lived Phenomena</i>	
<b>Director</b> .....	<b>Robert A. Citron</b>

## INTERNATIONAL ACTIVITIES PROGRAM

<i>Smithsonian Foreign Currency Program</i>	
<b>Director</b> .....	<b>Kennedy B. Schmertz</b>
<b>Administrative Assistant</b> .....	<b>Jean A. C. Harrell</b>
<b>Program Officer</b> .....	<b>C. Elmer Skold</b>
<b>Program Officer</b> .....	<b>Wayne Mills</b>
<b>Grants Technical Assistants</b> .....	<b>Betty J. Wingfield</b>
	<b>Judy Rogers Johnson<sup>20</sup></b>
	<b>Francine Berkowitz (Acting)</b>
 <i>International Liaison Program</i>	
<b>Acting Director</b> .....	<b>Richard T. Conroy</b>
<b>Program Officer</b> .....	<b>LeRoy Makepeace</b>
<b>Program Assistant</b> .....	<b>Saundra A. Tilghman (Acting)</b>

<sup>15</sup> Appointed October 15, 1973.

<sup>16</sup> Entered on duty June 8, 1974.

<sup>17</sup> Until December 31, 1973.

<sup>18</sup> January 1-June 30, 1974.

<sup>19</sup> On leave since 1972 to Council on Environmental Quality.

<sup>20</sup> Resigned June 1974.

## RADIATION BIOLOGY LABORATORY

<b>Director</b> .....	<b>William H. Klein</b>
<b>Assistant Director</b> .....	<b>W. Shropshire, Jr.</b>
<b>Agricultural Engineer</b> .....	<b>John Sager</b>
<b>Anthropologist</b> .....	<b>Robert Stuckenrath</b>
<b>Biochemists</b> .....	<b>David L. Correll</b>
	<b>Maurice M. Margulies</b>
<b>Biologists</b> .....	<b>Elisabeth Gantt</b>
	<b>Rebecca Hayes</b>
	<b>Allan Michaels</b>
<b>Chemist</b> .....	<b>David Severn</b>
<b>Fisheries Biologist</b> .....	<b>Joseph Miklas</b>
<b>Geneticist</b> .....	<b>Roy W. Harding, Jr.</b>
<b>Microbiologist</b> .....	<b>Brian Gray</b>
<b>Physicist</b> .....	<b>Bernard Goldberg</b>
<b>Physiological Ecologist</b> .....	<b>Bert Drake</b>
<b>Plant Physiologists</b> .....	<b>William O. Smith, Jr.</b>
	<b>John L. Edwards</b>
	<b>Cornelius Raven</b>
	<b>Michael Read</b>
	<b>Robert L. Weintraub</b>
<b>Fellow</b> .....	<b>Edward DeFabo</b>

## SMITHSONIAN ASTROPHYSICAL OBSERVATORY

<b>Director</b> .....	<b>George B. Field</b>
<b>Assistant Director</b> .....	<b>John G. Gregory</b>
<b>Scientific Staff:</b>	
<b>Kaare Aksnes</b>	<b>Gerald Hawkins</b>
<b>Eugene H. Avrett</b>	<b>Henry F. Helmken</b>
<b>Prabhu Bhatnagar</b>	<b>Paul W. Hodge</b>
<b>A. G. W. Cameron</b>	<b>Luigi G. Jacchia</b>
<b>Nathaniel P. Carleton</b>	<b>Wolfgang Kalkofen</b>
<b>Frederic Chaffee</b>	<b>Edwin M. Kellogg</b>
<b>Eric J. Chaisson</b>	<b>Douglas Kleinmann</b>
<b>Guisepppe Colombo</b>	<b>Yoshihide Kozai</b>
<b>Allan F. Cook</b>	<b>Robert L. Kurucz</b>
<b>Alex Dalgarno</b>	<b>David Latham</b>
<b>Robert J. Davis</b>	<b>Don A. Lautman</b>
<b>William A. Deutschman</b>	<b>Myron Lecar</b>
<b>Dale F. Dickinson</b>	<b>John R. Lester</b>
<b>Kate K. Docken</b>	<b>Martin Levine</b>
<b>Giovanni G. Fazio</b>	<b>A. Edward Lilley</b>
<b>Edward L. Fireman</b>	<b>Marvin Litvak</b>
<b>William Forman</b>	<b>Richard E. McCrosky</b>
<b>Fred A. Franklin</b>	<b>Brian G. Marsden</b>
<b>Edward M. Gaposchkin</b>	<b>Ursula B. Marvin</b>
<b>Giorgio Giacaglia</b>	<b>Donald H. Menzel</b>
<b>Riccardo Giacconi</b>	<b>Lawrence W. Mertz</b>
<b>Owen Gingerich</b>	<b>Henri E. Mitler</b>
<b>Paul Gorenstein</b>	<b>Paul A. Mohr</b>
<b>Mario D. Grossi</b>	<b>James Moran</b>
<b>Herbert Gursky</b>	<b>Stephen S. Murray</b>
<b>Marie E. Hallam</b>	<b>Robert W. Noyes</b>



*SAO Scientific Staff—cont.*

Michael Oppenheimer	Harvey D. Tananbaum
Costas Papaliolios	Wesley A. Traub
William H. Parkinson	Giuseppe Vaiana
Cecelia H. Payne-Gaposchkin	Leon van Spreybroeck
Michael R. Pearlman	George Veis
Harrison E. Radford	Robert Vessot
Edmond M. Reeves	George Victor
George B. Rybicki	Trevor C. Weekes
Winfield W. Salisbury	George Weiffenbach
Rudolph E. Schild	Steven Weinberg
Ethan J. Schreier	Fred L. Whipple
Daniel A. Schwartz	Charles A. Whitney
Zdenek Sekanina	Marlene Williamson
I. Shapiro	George L. Withbroe
Richard B. Southworth	John A. Wood
Frank Steinbrunn	Fred Young

*SMITHSONIAN SCIENCE INFORMATION EXCHANGE, INCORPORATED*

<b>President</b> .....	<b>David F. Hersey</b>
Vice President, Professional Services ....	Willis R. Foster
Vice President, Data Processing .....	Martin Snyderman
Secretary .....	V. P. Verfuert
Treasurer .....	David W. Lakamp
Assistant Treasurer .....	Evelyn M. Roll
Director of Marketing .....	David W. Lakamp
Marketing Manager .....	Janet D. Goldstein
<i>Science Division</i>	
Director .....	Willis R. Foster
Deputy, Life Sciences .....	Charlotte M. Damron
Chief, Medical Sciences Branch .....	Faith F. Stephan
Chief, Behavioral Sciences Branch .....	Rhoda Stolper
Chief, Social Sciences Branch .....	Barbara F. Lundquist
Chief, Agriculture Sciences Branch .....	William T. Carlson
Chief, Biological Sciences Branch .....	James R. Wheatley, Jr.
Deputy, Physical Sciences .....	Samuel Liebman
Chief, Chemistry, Material and Engineering Branch .....	Samuel Liebman
Chief, Physics, Mathematics and Electronics Branch .....	Robert Summers
Chief, Earth Science Branch .....	(Temporarily vacant)
<i>Data Processing Division</i>	
Director .....	Martin Snyderman
Deputy .....	Bernard L. Hunt
Chief, Input Services Branch .....	Jack DeVore
Chief, Systems Development Branch ....	Bernard L. Hunt
Chief, Programming and Reports Services Branch .....	Robert A. Kline
Chief, Computer Operations Branch .....	Paul Gallucci

*SMITHSONIAN TROPICAL RESEARCH INSTITUTE*

<b>Director</b> .....	<b>Ira Rubinoff</b>
Special Assistant to Director .....	Adela Gomez

*Smithsonian Tropical Research Institute*

Assistant Director .....	A. Stanley Rand
Administrative Officer .....	C. Neal McKinney
Manager, Barro Colorado Island .....	Ernest Hayden
Manager, Naos Island .....	Thomas Borges
Librarian .....	Alcira Mejía
Senior Scientist .....	Martin H. Moynihan

**Biologists:**

Charles Birkeland	Michael H. Robinson
Robert L. Dressler	Roberta W. Rubinoff
Peter W. Glynn	Alan P. Smith
Jeffrey B. Graham	Neal G. Smith
Egbert G. Leigh, Jr.	Nicholas Smythe
Olga F. Linares	Hindrik Wolda
David L. Meyer	

**Honorary:**

Carlos Arellano L.	Carlos Lehmann
Charles F. Bennet, Jr.	Ernst Mayr
Mary Jane West Eberhard	Barbara Robinson
William G. Eberhard	W. John Smith
Nathan Gale	Henry Stockwell
Pedro Galindo	Paulo Vanzolini
Carmen Glynn	Martin Young

**HISTORY AND ART**

<b>Assistant Secretary</b> .....	<b>Charles Blitzer</b>
<b>Program Management Officer</b> .....	Dean Anderson
<b>Bicentennial Coordinator</b> .....	Susan Hamilton

*ARCHIVES OF AMERICAN ART*

<b>Director</b> .....	<b>William E. Woolfenden</b>
<b>Deputy Director-Archivist</b> .....	Garnett McCoy
<b>Administrative Assistant</b> .....	Richard J. Nicastro
<b>Curator of Manuscripts</b> .....	Arthur J. Breton
<b>Assistant Curator of Manuscripts</b> .....	Nancy Zembala
<b>Manuscripts Assistant</b> .....	Anne Payne
<b>Area Directors</b> .....	Butler Coleman (New York)
	Robert Brown (Northeast)
	Dennis Barrie (Midwest)
	Paul Karlstrom (West Coast)
<b>Field Researchers</b> .....	F. Ivor D. Avellino (New York)
	Sylvia Loomis (Southwest)
<b>Oral History</b> .....	Paul Cummings

*COOPER-HEWITT MUSEUM OF DECORATIVE ARTS AND DESIGN*

<b>Director</b> .....	<b>Lisa Suter Taylor</b>
<b>Program Management Officer</b> .....	John Dobkin
<b>Administrator and Curator of Collections</b>	Christian Rohlfing
<b>Assistant Curator of Decorative Arts</b> ...	Catherine Frangiamore

*Cooper-Hewitt Museum—cont.*

Curator of Drawings and Prints .....	Elaine Evans Dee
Technician for Drawings and Prints ....	Xenia Cage
Assistant Curator of Textiles .....	Milton Sondag
Consultant for Textiles .....	Alice Baldwin Beer
Registrar .....	Mary F. Blackwelder
Exhibits Specialist .....	Dorothy Globus
Building Manager .....	Manuel Perez
Museum Secretary .....	Rowena MacLeod
Museum Receptionist .....	Mary Kerr

*FREER GALLERY OF ART*

<b>Director</b> .....	<b>Harold P. Stern</b>
Assistant Director .....	Thomas Lawton
Associate Curator, Chinese Art .....	Hin-cheung Lovell
Associate Curator, Near Eastern Art .....	Esin Atil
Head Conservator, Technical Laboratory.	W. Thomas Chase III
Chemist, Technical Laboratory .....	John Winter
Research Curator, Far Eastern Ceramics..	John A. Pope
Research Consultant, Technical Laboratory .....	Rutherford J. Gettens <sup>21</sup>
Research Assistant, Far Eastern Ceramics .....	Josephine H. Knapp
Research Assistant, Herzfeld Archive ...	Joseph M. Upton
Librarian .....	Priscilla P. Smith
Administrative Officer .....	Willa R. Moore
Registrar .....	Eleanor Radcliffe
Honorary Associates .....	Richard Edwards
	Calvin French

*THE HIRSHHORN MUSEUM AND SCULPTURE GARDEN*

<b>Director</b> .....	<b>Abram Lerner</b>
Deputy Director .....	Stephen Weil <sup>22</sup>
Administrator .....	Joseph Sefekar
Chief Curator .....	Charles W. Millard
Curator .....	Cynthia J. McCabe
Curator .....	Inez Garson
Curatorial Assistant .....	Phyllis Rosenzweig
Librarian .....	Anna Brooke
Registrar .....	Douglas Robinson
Prints and Drawings Specialist .....	Frank B. Gettings
Chief, Education Program .....	Edward Lawson
Education Specialist .....	Mary Ann Tighe
Building Manager .....	Keith Cumberland

*JOSEPH HENRY PAPERS*

<b>Editor</b> .....	<b>Nathan Reingold</b>
Assistant Editor .....	Michele L. Aldrich
Assistant Editor .....	Arthur P. Molella
Staff Historian .....	James M. Hobbins
Research Assistant .....	Kathleen Waldenfels
Administrative Officer .....	Beverly Jo Lepley

<sup>21</sup> Died June 17, 1974.

<sup>22</sup> Entered on duty July 22, 1974.



## NATIONAL ARMED FORCES MUSEUM ADVISORY BOARD

<b>Director</b> .....	<b>James S. Hutchins</b>
<b>Administrative Officer</b> .....	<b>Miriam H. Uretz</b>
<b>Collections</b> .....	<b>John M. Elliott</b>
<b>Secretary</b> .....	<b>Barbara J. Lane</b>

## NATIONAL COLLECTION OF FINE ARTS

<b>Director</b> .....	<b>Joshua C. Taylor</b>
<b>Assistant Director for Operations</b> .....	<b>Harry Lowe</b>
<b>Assistant Director for Administration</b> ...	<b>Harry Jordan</b>
<b>Registrar</b> .....	<b>W. Robert Johnston</b>
<b>Curator, 20th Century Painting and Sculpture</b> .....	<b>Walter Hopps</b>
<b>Consultant, 20th Century Painting and Sculpture</b> .....	<b>Adelyn Breeskin</b>
<b>Associate Curator, 18th- and 19th-Century Painting and Sculpture</b> .....	<b>William H. Truettner</b>
<b>Curator, Prints and Drawings</b> .....	<b>Janet A. Flint</b>
<b>Curator of Education</b> .....	<b>Peter Bermingham</b>
<b>Director, Renwick Gallery</b> .....	<b>Lloyd E. Herman</b>
<b>Associate Curator, Renwick Gallery</b> .....	<b>Michael Monroe</b>
<b>Curator of Research</b> .....	<b>Lois M. Fink</b>
<b>Coordinator, Bicentennial Inventory of American Paintings</b> .....	<b>Abigail Booth</b>
<b>Chief, Office of Exhibition and Design</b> ..	<b>David Keeler</b>
<b>Chief, Office for Exhibitions Abroad</b> ....	<b>Lois A. Bingham</b>
<b>Conservator</b> .....	<b>Thomas Carter</b>
<b>Editor, Office of Publication</b> .....	<b>Carroll Clark</b>
<b>Librarian, NCFA/NPG</b> .....	<b>William B. Walker</b>
<b>Coordinator for Lending Program</b> .....	<b>Donald R. McClelland</b>

## NATIONAL MUSEUM OF HISTORY AND TECHNOLOGY

<b>Director</b> .....	<b>Brooke Hindle</b>
<b>Deputy Director</b> .....	<b>Silvio A. Bedini</b>
<b>Assistant Director for Administration</b> ...	<b>Robert G. Tillotson</b>
<b>Assistant Director for Design and Production</b> .....	<b>Benjamin W. Lawless</b>
<b>Registrar</b> .....	<b>Virginia Beets</b>
<b>Chief, Exhibits Programs</b> .....	<b>Harold K. Skramstad</b>
<b>Senior Historian</b> .....	<b>Daniel J. Boorstin</b>

## APPLIED ARTS

<b>Chairman</b> .....	<b>Carl H. Scheele</b>
<b>Graphic Arts</b>	
<b>Associate Curators</b> .....	<b>Elizabeth M. Harris</b>
	<b>Peter C. Marzio</b>
<b>Numismatics</b>	
<b>Curators</b> .....	<b>Vladimir Clain-Stefanelli</b>
	<b>Elvira Clain-Stefanelli</b>
<b>Photographic History</b>	
<b>Curator</b> .....	<b>Eugene Ostroff</b>
<b>Assistant Curator</b> .....	<b>David E. Haberstich</b>

### *Postal History*

Curator .....	Carl H. Scheele
Associate Curators .....	Franklin R. Bruns Reidar Norby

### *Textiles*

Curators .....	Rita J. Adrosko Grace R. Cooper
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### Honorary:

Numismatics .....	Cora Lee C. Gilliland R. Henry Norweb Emery May Norweb
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## CULTURAL HISTORY

Chairman (acting) .....	Rodris Roth
Senior Curator .....	C. Malcolm Watkins

### *Costume and Furnishings*

Curator .....	Rodris Roth
Assistant Curator .....	Claudia B. Kidwell
Curator Emeritus .....	Anne W. Murray

### *Ethnic and Western Cultural History*

Curators .....	Richard E. Ahlborn William Seale
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### *Musical Instruments*

Curator .....	John T. Fesperman
Associate Curator .....	Cynthia A. Hoover
Assistant Curator .....	James M. Weaver

### *Preindustrial Cultural History*

Associate Curator .....	Anne C. Golovin
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### Honorary:

Musical Instruments .....	David W. Hinshaw
Preindustrial Cultural History .....	Ivor Noël-Hume Robert H. McNulty Joan Pearson Watkins

## INDUSTRIES

Chairman .....	John H. White, Jr.
Historian Emeritus .....	Howard I. Chapelle

### *Agriculture and Mining*

Curator .....	John T. Schlebecker, Jr.
Associate Curator .....	John N. Hoffman

### *Ceramics and Glass*

Curators .....	J. Jefferson Miller II Paul V. Gardner
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### *Manufacturing*

Assistant Curator .....	George T. Sharrer
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### *Transportation*

Curators .....	John H. White, Jr. Melvin H. Jackson
Assistant Curator .....	Donald H. Berkebile

<b>Honorary:</b>	
Ceramics and Glass .....	Hans Syz
Manufacturing .....	Philip W. Bishop
Transportation .....	Peter B. Bell
<b>NATIONAL AND MILITARY HISTORY</b>	
Chairman .....	Margaret B. Klapthor
<i>Military History</i>	
Curator .....	Craddock R. Goins, Jr.
Assistant Curator .....	Donald E. Kloster
<i>Naval History</i>	
Curators .....	Philip K. Lunderberg Harold D. Langley
<i>Political History</i>	
Curator .....	Margaret B. Klapthor
Associate Curator .....	Herbert R. Collins
<b>Honorary:</b>	
Naval History .....	William Rea Furlong
<b>SCIENCE AND TECHNOLOGY</b>	
Chairman .....	Robert M. Vogel
Senior Scientific Scholar .....	Robert P. Multhauf
Historian (Pharmacy) .....	Sami K. Hamarneh
Principal Investigator (Computer History Project) .....	Henry S. Tropp
<i>Electricity and Nuclear Energy</i>	
Curator .....	Bernard S. Finn
Associate Curator .....	Paul Forman
<i>Mechanical and Civil Engineering</i>	
Curators .....	Robert M. Vogel Edwin A. Battison Otto Mayr
<i>Medical Sciences</i>	
Associate Curator .....	Audrey B. Davis
<i>Physical Sciences</i>	
Associate Curator .....	Deborah J. Warner
Curator .....	Walter F. Cannon
Associate Curator .....	Jon B. Eklund
<i>Section of Mathematics</i>	
Curator .....	Uta C. Merzbach
<b>Honorary:</b>	
Electricity and Nuclear Energy .....	Ladislaus L. Marton Gerald F. J. Tyne
Physical Sciences .....	Anthony R. Michaelis Derek J. De Solla Price Arthur Frazier

<b>OFFICE OF EXHIBITS</b>	
Assistant Director for Design and Production .....	Benjamin W. Lawless



*Office of Exhibits—cont.*

Chief, Exhibits Designs .....	Richard S. Virgo
Chief, Exhibits Production .....	Stanley Santoroski

*NATIONAL PORTRAIT GALLERY*

<b>Director</b> .....	<b>Marvin S. Sadik</b>
Assistant Director and Administrative Officer .....	Douglas E. Evelyn
Historian .....	Lillian B. Miller
Research Historian .....	Frederick S. Voss
Coordinator of Exhibitions .....	Beverly J. Cox
Curator .....	Robert G. Stewart
Associate Curator .....	Monroe Fabian
Keeper of the Catalogue .....	Mona Dearborn
Curator of Education .....	Dennis A. O'Toole
Associate Curator of Education .....	Lisa Strick
Chief, Exhibits Design and Production ..	Joseph M. Carrigan
Librarian (NPG-NCFA) .....	William B. Walker
Senior Conservator .....	Felrath Hines
Photographer .....	Eugene L. Mantie
Registrar .....	Jon D. Freshour
Assistant Registrar .....	Suzanne C. Jenkins
Public Affairs Officer .....	Carol Cutler

*OFFICE OF ACADEMIC STUDIES*

<b>Executive Officer</b> .....	<b>Edward S. Davidson</b>
Program Officer .....	Gretchen Gayle

*OFFICE OF AMERICAN STUDIES*

<b>Director</b> .....	<b>Wilcomb E. Washburn</b>
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**MUSEUM PROGRAMS**

<b>Assistant Secretary</b> .....	<b>Paul N. Perrot</b>
Research Associate .....	Frank A. Taylor

*CONSERVATION-ANALYTICAL LABORATORY*

<b>Chief</b> .....	<b>Robert M. Organ</b>
Research Chemist .....	Jacqueline S. Olin
Supervisory Conservator .....	Eleanor McMillan
Administrative Officer .....	Montague Smith

*OFFICE OF EXHIBITS CENTRAL*

<b>Chief</b> .....	<b>James A. Mahoney</b>
Assistant Chief and Exhibits Editor .....	Constance Minkin
Administrative Officer .....	William M. Clark
Coordinator .....	Joseph W. Saunders
Chief of Production .....	John C. Widener

## OFFICE OF MUSEUM PROGRAMS

<b>Assistant Director and Administrator, National Museum Act</b> .....	<b>Frederick Schmid</b>
<b>Administrative Assistant</b> .....	<b>Gwendolyn Baker</b>
<b>Program Coordinator, Conservation Information</b> .....	<b>Elena Borowski</b>
<b>Research Assistant</b> .....	<b>Jean Chen</b>
<b>Museum Studies Specialist</b> .....	<b>Marilyn S. Cohen</b>
<b>Program Coordinator, Museum Workshop Program</b> .....	<b>Rolland O. Hower</b>
<b>Research Psychologist</b> .....	<b>Robert A. Lakota</b>
<b>Research Psychologist (Visiting)</b> .....	<b>Ross J. Loomis<sup>23</sup></b>
<b>Museum Studies Specialist</b> .....	<b>Margaret Parsons</b>
<b>Consultant, Experimental Psychology</b> ....	<b>C. G. Screven</b>

## OFFICE OF REGISTRAR

<b>Registrar pro tem</b> .....	<b>Richard H. Lytle<sup>24</sup></b>
<b>Supervisory Technician</b> .....	<b>Margaret Santiago</b>
<b>Supervisory Transportation Specialist</b> ...	<b>Gleason Shaver</b>

## SMITHSONIAN INSTITUTION ARCHIVES

<b>Archivist</b> .....	<b>Richard H. Lytle</b>
<b>Associate Archivist</b> .....	<b>William A. Deiss</b>
<b>Assistant Archivists</b> .....	<b>James Steed</b>
	<b>Alan L. Bain</b>
<b>Supervisory Technician</b> .....	<b>Norwood Biggs</b>

## SMITHSONIAN INSTITUTION LIBRARIES

<b>Director of Libraries</b> .....	<b>Russell Shank</b>
<b>Assistant to the Director for Planning and Research</b> .....	<b>Elaine Sloan</b>
<b>Administrative Librarian</b> .....	<b>Thomas L. Wilding</b>
<b>Administrative Officer</b> .....	<b>Mary C. Quinn</b>
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<b>Deputy Assistant Director of Libraries for Bureau Services</b> .....	<b>L. Frances Jones</b>
<b>Assistant Director of Libraries for General Services</b> .....	<b>Philip Leslie</b>
<b>Access Services</b>	
<b>Chief</b> .....	<b>Jack F. Marquardt</b>
<b>Assistant Chief</b> .....	<b>Dan O. Clemmer<sup>25</sup></b>
<b>Assistant Chief</b> .....	<b>Amy Levin<sup>26</sup></b>
<b>Bibliographer for the History of Science and Technology</b> .....	<b>Jack S. Goodwin</b>

<sup>23</sup> July 1, 1973 to September 15, 1973.

<sup>24</sup> Effective December 1973.

<sup>25</sup> Transferred to State Department Library November 23, 1973.

<sup>26</sup> Appointed April 15, 1974.

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<i>Acquisitions Division</i>	
Chief .....	Mildred D. Raitt
Gift and Exchange Librarian .....	Sharon H. Sweeting
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	Frances W. Penfold <sup>27</sup>
<i>Processing Section</i>	
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Librarian .....	Anna M. Brooke
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Librarian .....	Catherine D. Scott
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Librarian .....	William B. Walker
Reference Librarian .....	Sara H. Hanan <sup>28</sup>
Reference Librarian .....	Katharine Ratzenberger <sup>29</sup>
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<i>Woodrow Wilson International Center for Scholars</i>	
Librarian .....	Mary Anglemeyer <sup>30</sup>
Librarian .....	Zdenek David <sup>31</sup>

<sup>27</sup> Appointed November 25, 1973.

<sup>28</sup> Resigned May 18, 1974.

<sup>29</sup> Appointed April 28, 1974.

<sup>30</sup> Retired December, 1973.

<sup>31</sup> Appointed March 18, 1974.



## SMITHSONIAN INSTITUTION TRAVELING EXHIBITION SERVICE

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## APPENDIX 11. *List of Donors to the Smithsonian Institution in Fiscal Year 1974*

The Board of Regents and the Secretary of the Smithsonian Institution join with the entire staff in thanking all of our friends for their generous financial support and for their gifts to the collections. If perchance any donor has been omitted from the following lists, it is an inadvertence and not intentional. Many gifts were received from anonymous donors.

Our gratitude also goes out to the many capable and dedicated volunteers, who contribute so significantly each year to the Institution's programs, particularly in the areas of education and visitor orientation. The 1,120 volunteers have graciously contributed 105,000 hours of work; this represents 77 man-years and can be valued at approximately \$900,000.

### OFFICE OF THE SECRETARY

#### SPECIAL PROJECTS

##### *Donors to the Furnishings Collection*

- Armstrong, General and Mrs. Donald, Palm Beach, Florida: *Empire sofa belonging to President Andrew Jackson during his presidency; Victorian sculpture group with pedestal.*
- Davis, Mrs. Richard, Washington, D.C.: *Empire secretary.*
- Deveau, Mr. and Mrs. Donald, Bethesda, Maryland: *Renaissance Revival console table with two side chairs; Renaissance Revival secretary; Victorian mantel clock; pair Renaissance Revival arm chairs.*
- Fetherston, Mrs. Edith (from her estate), Lewisburg, Pennsylvania: *Pair Renaissance Revival arm chairs; Victorian bookcase; one set North American Wildflowers, by Mary Veau Walcott.*
- Freseman, Mrs. Perry, Alexandria, Virginia: *Eastlake hatstand; Rococo Revival secretary.*
- King, Mrs. Moya B., Washington, D.C.: *pair centennial side chairs.*
- Patterson, Mrs. Jefferson, Washington, D.C.: *folding table, serving tray, bookcase.*
- Shepard, Mrs. Donald, Washington, D.C.: *oil portrait of Andrew Mellon by Gari Melchers.*
- Wood, Mrs. N. Bissell, Washington, D.C.: *pair of ornamental Victorian cast-iron garden urns.*
- Wyckoff, Mr. and Mrs. Bernard, Washington, D.C.: *Victorian chandelier.*
- Young, Dorothy M. (from her estate), Washington, D.C.: *set of Oriental ceramics.*



# SCIENCE

## NATIONAL AIR AND SPACE MUSEUM

### *Donors to the Aeronautic Collections*

American Airlines: *aircraft — Ford Tri-Motor, Model 5-AT-B.*  
Dawson, J., and Maryann Ransome: *aircraft — Pitts Special.*  
Doolittle, Lt. Gen. James H., USAF (Ret.): *45 items of memorabilia, including photos, portrait, medals, awards, etc.*  
Emge Aviation Marine Products, Inc.: *pressure suit with helmet and controller.*  
Goodyear Aerospace Corporation: *aircraft — Goodyear Inflatoplane.*  
Pan American: *DC-8 Flight Simulator.*  
Raven Industries: *balloon gondola.*  
Rickenbacker, Capt. Eddie (from his estate): *230 items of memorabilia, including portrait, awards, medals, etc.*  
Turner, Mrs. Roscoe: *Uniforms and clothing worn by Roscoe Turner.*

### *Donors to the Astronautic Collections*

Artists, The Garrett Corporation, LTV Aerospace Corporation, Hughes Aircraft Company, and System Development Corporation: *29 works of space art by seventeen artists including works by Robert McCall, Paula Greenman, and Raquel Forner.*  
Geiss, Dr. J., Universitat Bern, Physikalisches Institut, Switzerland: *Apollo Solar Wind Experiment (backup flight unit).*  
National Aeronautics and Space Administration: *Apollo Program materiel, including Apollo 17 astronaut space suits, Apollo Lunar Surface Experiment Packages, Lunar Sample Return Containers, lunar hand tools, and astronaut training equipment.*  
Stine, G. Harry, Phoenix, Arizona: *Unique documented collection of model rockets and missiles consisting of all known model kits, both U.S. and foreign.*  
United States Navy: *Poseidon Missile.*

## NATIONAL MUSEUM OF NATURAL HISTORY

### *Donors of Financial Support*

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Abbott, Dr. R. Tucker (see Delaware Museum of Natural History).  
 Academia Nauk of the USSR, Institute of Evolutionary Morphology and Ecology, Animals (through Dr. N. Nikitsky): *beetle, type*.  
 Academy of Natural Sciences of Philadelphia (through Dr. Samuel L. H. Fuller): 9 *echinoderms*; 96 *crustaceans*; (through Dr. H. Radclyffe Roberts): 4 *grasshoppers (exchange)*; (through Dr. James Tyler): 4 *echinoderms*.  
 Academy of Sciences of the USSR, Institute of Zoology and Botany (through Dr. K. Elberg): 13 *marsh flies*. Zoological Institute (through Dr. K. B. Gorodkov): 10 *empid flies*; (through Dr. V. A. Trjapitzin): 58 *chalcid flies (exchange)*.  
 Addicott, Warren O. (see Interior, U.S. Department of the).  
 Adelaide, University of, Australia (through Dr. H. B. S. Womersley): 141 *algae (exchange)*.  
 Afgouni, Kalil: *beryl specimen, Brazil*.  
 Agrell, Dr. S. O.: 2 *osumilite specimens, Ireland*.  
 Agriculture, U.S. Department of, Agricultural Research Service (through Dr. Arthur S. Barclay): 492 *plants, Colombia*; (through Dr. E. W. Baker): 242 *acarina slides, including types, Mexico*; (through Dr. Richard H. Foote): 47,958 *insects, worldwide*; 2 *decapod larvae, North Carolina*; (through Dr. A. M. Golden): 166 *crustaceans, Nigeria*; (through Dr. A. S. Menke): 376 *insects, U.S.*; (through Dr. Reece I. Sailer): 23 *isopods, Chile*; (through Dr. W. W. Wirth): 92 *insects, Florida*; 54 *Lepidoptera*, 53 *neuropteroids, North America*. Forest Service: 17,321 *insects, Japan*; (through Dr. Harold E. Grelen): *Andropogon specimen, Louisiana*; (through Dr. Elbert L. Little, Jr.): 1,037 *plants, Puerto Rico and Virgin Islands*. National Arboretum (through Dr. T. Dudley): 15 *plants, Peru*. Systematic Entomology Laboratory (through Dr. D. C. Ferguson): 5,697 *moths*.  
 Ahmadu Bello University, Nigeria (through John Deeming): 203 *flies*.  
 Ahmed, Dr. Muzammil: 17 *marine mollusks*.  
 Aitchison, Mrs. C. W.: 2 *centipedes, Canada*.  
 Alabama, University of (through Dr. Herbert T. Boschung): 809 *crustaceans*; 28 *fish*; (through Magi Cameron): 5 *palms, Colombia*.

Alaska, University of (through Dr. James E. Morrow): 3 *fishes, types*.  
 Albaugh, Dr. Douglas W. (see Texas A&M University).  
 Alberta, University of, Canada (through Joseph Belicek): 9 *beetles (exchange)*;  
 (through B. S. Heming); 6 *thrips (exchange)*.  
 Aleksandrov, Dr. S. M. (through Mary Mrose): 16 *mineral specimens USSR*.  
 Allard, Robert E.: *arrow with poisoned tip, Kenya*.  
 Allen, Dr. Gerald (see Australia, Government of).  
 Allen, Dr. Harry W.: 249 *wasp slide mounts*.  
 Allyn, Arthur C.: 5,798 *moths, Mexico*.  
 Almborn, Dr. O. (see Botanical Museum).  
 Alpine Corporation (through Henry Truebe): *quartz specimen, Colorado*.  
 Altena, Dr. C. O. Van Regteren (see Rijksmuseum van Natuurlijke Historie).  
 Altig, Dr. Ronald (see Mississippi State University).  
 Alusuisse Metals, Inc.: *crystal of gallium metal*.  
 Amaoka, Kunio (see Hokkaido University).  
 American Museum of Natural History (through Dr. Meredith Jones): 500  
*brachiopods*; (through Dr. William E. Old, Jr.): 5 *marine mollusks*  
*(exchange)*.  
 American Samoa, Government of (through Duane Rodman): 29 *fish*; (through  
 Dr. Stanley Swerdlhoff): 75 *marine mollusks*.  
 Anderson, Alexander G.: 13 *baskets, mats, and weapons, Congo*.  
 Anderson, Dr. Donald M.: 26 *weevils*.  
 Anderson, H. J. (see Westinghouse Corp.).  
 Andrews, Murray M.: *crustacean, Alaska*.  
 April, Martin: *blowgun and darts, British Guiana*.  
 Aquaculture International (Australia) Pty. Ltd. (through Takuji Fujimura): 4  
*crustaceans, Hawaii*.  
 Aquinas College (through Dr. Robert S. Benda): 71 *crustaceans, Michigan*.  
 Archeological Society of Maryland: 3 *human skeletal remains*.  
 Arem, Dr. Joel E.: 22 *mineral specimens* (see also Friends of Mineralogy).  
 Argentina, Government of: Ministerio de Cultura u Educacion (through Dr.  
 Peter Seeligmann): 142 *plant specimens (exchange)*.  
 Arhus Universitet, Denmark (through Dr. Kai Larsen): 44 *plant specimens*  
*(exchange)*.  
 Arizona State College (through Delzie Demaree): 93 *plant specimens*.  
 Arizona State University (through Denton Belk): 316 *crustaceans*; (through  
 Elinor Lehto): 275 *plant specimens*; (through Dr. D. J. Pinkava): 33  
*Eriogonum specimens*.  
 Arizona, University of (through Dr. Steven Hilty): 160 *plant specimens*,  
*Colombia*.  
 Arnell, J. Hal (see California, University of).  
 Arthur Rylan Institute for Environmental Research, Australia (through Dr.  
 Robert M. Werneke): *fur seal*.  
 Ash, Dr. Sidney R.: 12 *fossil plants*, 14 *slide preparations*.  
 Atomic Energy Commission: Puerto Rico Nuclear Center (through Delores  
 Ayguabibas): 11 *copepods*.  
 Auburn University (through Dr. John S. Ramsey): 1,081 *crustaceans, Alabama*.  
 Australia, Government of: The Australian Museum (through Dr. Gerald  
 Allen): 42 *fishes, including types*; (through Colleen J. Robinson): 2 *mollusk*  
*paratypes*; (through Lin Sutherland): *meteorite specimen, New Guinea*  
*(exchange)*. Commonwealth Scientific and Industrial Research Organization:  
 1,010 *botanical specimens (exchange)*. Department of Mines (through R. C.  
 Gorman): *bag of calcium sulfosilicate*. National Herbarium of New South  
 Wales: 184 *plant specimens (exchanges)*. Queensland Herbarium: 268 *plant*  
*specimens (exchanges)*.



Axelrod, Dr. Herbert R.: 75 *mollusk specimens, Africa* (see also T.F.H. Publications, Inc.).  
 Ayala, Dr. Francisco J. (see California, University of).  
 Ayguabibas, Delores (see Atomic Energy Commission).  
 Bacon Fund, Smithsonian Institution: 86 *bird skeletons*.  
 Baglin, Elizabeth G. (see Interior, U.S. Department of the).  
 Bailey, Dr. Joseph R. (see Duke University).  
 Bailey, Dr. R. M. (see Michigan, University of).  
 Baker, Dr. E. W. (see Agriculture, U.S. Department of).  
 Balcomb, Kenneth C.: 2 *marine mammals*.  
 Baldwin, Dr. J. T., Jr.: 1,103 *botanical specimens*.  
 Ball, Dr. George E.: 51 *ground beetles*; 373 *centipedes*.  
 Balsbaugh, Dr. E. U.: 11 *beetles*.  
 Banta, Dr. William: 2 *Bryozoa slides*.  
 Barbehenn, Dr. Kyle R. (see State, U.S. Department of).  
 Barclay, Dr. Arthur S. (see Agriculture, U.S. Department of).  
 Barham, Dr. Eric G.: 9 *echinoderms*.  
 Barker, Mrs. Robert: 68 *mineral specimens*.  
 Barkley, Dr. Fred A.: 252 *plant specimens*.  
 Barkley, Dr. T. M. (see Kansas State University).  
 Barnes, Dr. Robert D. (see Del Mar College).  
 Barnett, Dr. Douglas E.: 10 *cicadas*.  
 Barnish, Guy (see St. Lucia, W.I., Government of).  
 Barr, Louis (see Commerce, U.S. Department of).  
 Barr, Dr. William: 41 *beetles*.  
 Barros, Neylson: 2 *mineral specimens, Brazil*.  
 Bashore, Mrs. Judy C.: *margay cat*.  
 Bates, Robert: 5 *mineral specimens*.  
 Batham, Dr. Elizabeth J.: 7 *polychaetes, New Zealand*.  
 Bauchot, Dr. M. L. (through Dr. B. B. Collette): *fish type*.  
 Baumann, Dr. Richard W.: 2,756 *insects*; 85 *water beetles*.  
 Bayer, Dr. F. M. (see Miami, University of).  
 Be, Dr. Alan W. H.: 19 *foraminifera types*.  
 Beaman, Dr. John H. (see Michigan State University).  
 Bechtel, Dr. Robert C.: 2 *lace bugs*; 21 *matispids*; 108 *lace bugs and cicadas*; 150 *beetles* (see also Nevada, State of).  
 Beck, Dorothy Bateman, Estate of (through Edward J. Corcoran): 24 *steel pole arms heads, China (bequest)*.  
 Beck, Dr. William M., Jr.: 15 *stoneflies, Sweden*.  
 Becker, Dr. E. C.: *ground beetle, Mexico*.  
 Becker, Dr. Vitor Osmar: 4 *moths*.  
 Belgium, Government of: Jardin Botanique National de Belgique: 19 *bambusa*.  
 Belicek, Joseph (see Alberta, University of).  
 Belk, Denton (see Arizona State University).  
 Bell, Mrs. Mae Woods (see Children's Museum).  
 Belle, Jean: 15 *dragonflies (exchange)*.  
 Bellport Senior High School: Students for Environmental Quality (through Thomas A. Woolford): 9 *mollusk specimens*.  
 Benda, Dr. Robert S. (see Aquinas College).  
 Benfield, Dr. Fred: *water beetle*.  
 Benthin, Bruce M.: 16 *mineral specimens*.  
 Berdan, Dr. Jean M. (see Interior, U.S. Department of the).  
 Berman, Dr. and Mrs. Bernard: *cut emerald, Colombia*.  
 Bermuda Biological Station for Research (through Bruce C. Coull): 393 *crustaceans*.

Bermudez, Dr. Pedro J. (see Venezuela, Government of).  
 Bernard, David G. (see International Paper Co.).  
 Bernard, Dr. Frank R. (see Canada, Government of).  
 Bernice P. Bishop Museum (through Dr. Dennis M. Devaney): 1 *Holothurian*;  
 (through Anita Manning): 89 *plants*; 389 *plants (exchanges)*; (through G. A.  
 Samuelson): 19 *leaf beetles (exchange)*; (through Dr. Wallace B. Steffan):  
 12 *mosquitoes (exchange)*.  
 Bernstein, Lawrence: 5 *Chrysocolla*; 1 *lot vivianite (exchange)*.  
 Berrill, Dr. Michael (see Princeton University).  
 Berry, Dr. S. Stillman: 2 *Pecten specimens containing brachiopods*, 4 *marine mollusks*.  
 Beshear, Ramona J.: 3 *lace bugs*.  
 Bethlehem Steel Corporation (through Dr. B. L. Bramfitt): *graphite specimen*.  
 Beu, Dr. A. G. (see New Zealand, Government of).  
 Bideaux Minerals: *vanadinite on barite*.  
 Bieri, Dr. Robert: 1,000 *worms*.  
 Birenheide, Dr. Rudolf (see Forschungs-Institut Senckenberg).  
 Birkeland, Dr. Charles (see Smithsonian Institution).  
 Bisson, Peter A. (see Oregon State University).  
 Bjornberg, Dr. Tagea K. S. (see Universidade de Sao Paulo).  
 Blair, Dr. Albert P.: 4 *land mollusks*.  
 Blake, Dr. James A.: 225 *polychaetes*.  
 Blanchard, Andre: 1,714 *moths*.  
 Blewett, J. (see Great Britain, Government of).  
 Blume, Richard R.: 10 *beetles*.  
 Bode, Mrs. Helen Spalding, Estate of (through Kenneth Foster, Jr.): 21  
*anthropological specimens, mostly Chinese (bequest)*.  
 Boesch, Dr. Donald F. (see Virginia Institute of Marine Science).  
 Boesman, Dr. M. (see Rijksmuseum van Natuurlijke Historie).  
 Bokermann, Dr. Werner C. A.: 19 *frogs*.  
 Bonar, Henry: *silicified wood specimen, Honduras*.  
 Bond, Dr. Carl (see Oregon State University).  
 Bonner, Dr. C. E. B. (see Conservatoire et Jardin Botaniques).  
 Borden, Joseph H.: 9 *mineral specimens (exchange)*.  
 Borhidi, Dr. A. (see Eotvos University).  
 Boschung, Dr. Herbert T. (see Alabama, University of).  
 Boss, Dr. K. M. (see Harvard University).  
 Bostic, Dr. Dennis L. (see Palomar College).  
 Boswell, Mrs. Helen: 4 *mollusks*.  
 Botanical Museum, Sweden (through Dr. O. Almborn): 128 *plants, Africa (exchange)*.  
 Botanisches Museum Berlin-Dahlem: 29 *ferns (exchange)*.  
 Botanisk Museum, Norway (through Dagfinn Moe): 75 *plant specimens (exchange)*.  
 Bottimer, Larry J. (see Canada, Government of).  
 Boucek, Dr. Z. (see Commonwealth Institute of Entomology).  
 Boucot, Dr. Arthur J.: 18,015 *brachiopods*, 2 *latex molds, Silurian and Devonian*.  
 Bowling Green State University (through Dr. Richard D. Hoare): 6 *bryozoan fossils*.  
 Bramfitt, Dr. B. L. (see Bethlehem Steel Corporation).  
 Brandt, Tom (see Virginia Polytechnic Institute and State University).  
 Brannock, K. C., Estate of: 511 *mineral specimens (bequests)*.  
 Branson, Dr. Branley A.: *land mollusk*.  
 Brazil, Government of: Faculdade de Ciencias Medical E Biologicas de

- Botucatu (through Dra. Ilse S. Gottsberger): 10 *melastomataceae*. Secretaria de Agricultura, Industria, E Comercio: 6 *Bromeliaceae*.
- Brenan, Dr. J. P. M. (see Great Britain, Government of).
- Brewer, George: 9 *mineral specimens*.
- Brice, Dr. D.: 6 *brachiopods*, Upper Devonian, Afghanistan.
- Brigham, Warren U. (see Illinois Natural History Survey).
- Brigham Young University (through Dr. C. Selby Herin): 6 *mite slides, types*; (through Dr. Stanley L. Welsh): 116 *plants (exchange)*.
- Bright, Dr. Donald B. (see California State University).
- Bright, Dr. Donald E., Jr. (see Canada, Government of).
- Brinton, Dr. Edward (see California, University of).
- Broadhead, Dr. Thomas W. (see Texas, University of).
- Brown, Dick E.: 1 *lot quartz*.
- Brown, Dr. William L.: 32 *centipedes*, 200 *mites* (see also Cornell University).
- Browne, Dr. P. R. L.: *vial of teschermacherite*, New Zealand.
- Brownell, Robert L., Jr.: 4 *bird skeletons*; 118 *marine mammals*.
- Brownell, W. N. (see Virgin Islands Ecological Research Station).
- Bruce, Dr. A. J. (see East African Marine Fisheries Research Organization).
- Bruce-Terminix Co. (through E. V. Walter): 29 *crustaceans*.
- Brumbach, William C.: 102 *plant specimens*.
- Bryan, Patrick (see Guam, University of).
- Buckley, George (see Harvard University).
- Buechner, Dr. Helmut K.: 475 *antelopes*.
- Buell, William: 5 *mineral specimens*.
- Burger, Dr. John F.: 4 *rodent bot flies*.
- Burghardt, Glenn E.: 2 *mollusks, types*.
- Burke, Dr. Horace: 29 *weevils, including types*.
- Burkholder, Dr. Paul R. (see Puerto Rico, University of).
- Bussing, Dr. William A. (see Universidad de Costa Rica).
- Byron, Mrs. George: 3 *Hopi Indian pottery plaques*.
- Cala, Dr. Plutarco (see Universidad Nacional de Colombia).
- Caldwell, Dr. David K. (see Marineland of Florida).
- California, State of: Department of Agriculture (through Dr. Alan R. Hardy): 17 *beetles (gift-exchange)*. Department of Fish and Game (through Dick Daniel): 33 *copepods*; (through James L. Houk): 1 *barnacle*.
- California, University of: Berkeley Campus (through Dr. John L. Strother): 252 *plant specimens (gift-exchange)*. Davis Campus (through Dr. Francisco J. Ayala): 15 *Drosophila flies*; (through R. O. Schuster): 3 *thrips, Hawaii exchange*; (through John M. Tucker): 1 *Calathea dressleri isotype, Panama*; (through Dr. Grady L. Webster): 31 *plant specimens, New Caledonia (exchange)*. Lawrence Livermore Laboratory (through Dr. Gilbert D. Potter): 3 *crustaceans, South Pacific*; 5 *bird skins and 5 bird skeletons, Eniwetok Atoll*. Los Angeles Campus (through J. Hal Arnell): 31 *mosquitoes*; (through Dr. Gary N. Lane): 10 *crinoids, Ordovician, Utah*; (through Dr. Joseph Murdock): 8 *sulfur specimens*. Riverside Campus (through W. H. Ewart): 5 *thrips*; (through Dr. T. W. Fisher): 2 *marsh flies*. San Diego Campus (through Dr. Carl D. Hopkins): 49 *fishes, Guyana*. Scripps Institution of Oceanography (through Dr. Edward Brinton): 3 *crustaceans, Singapore*; (through Dr. Abraham Fleminger): 20 *copepods, 1 slide*; (through Dr. John E. McCosker): 13 *fishes*; (through Dr. William A. Newman): 107 *marine mollusks, including types*; (through Dr. Eric Shulenberger): 241 *crustaceans*.
- California Academy of Sciences (through Dr. Jean Durham): 1 *fossil paratype*; (through Dr. W. N. Eschmeyer and B. B. Collette): 3 *fishes, Venezuela (exchange)*; (through Dr. W. N. Eschmeyer): 1 *fish holotype*;



(through Dr. Tomio Iwamoto): 5 *fishes, types*.  
 California State University (through Dr. Donald B. Bright): 32 *crustaceans, Costa Rica*.  
 Cameron, Magi (see Alabama, University of).  
 Camp, David K. (see Florida, State of).  
 Canada, Government of: Department of Agriculture (through Larry J. Bottimer): 2 *seed beetles, Mexico*; (through Dr. Donald E. Bright, Jr.): 40 *bark beetles*; (through Dr. R. A. Ellis): 3 *mosquitoes*. Department of Energy, Mines, and Resources (through Dr. B. S. Norford): 10 *Acaste birminghamensis, type*. Fisheries Research Board (through Dr. Frank R. Bernard): 1 *marine mollusk*. Gouvernement du Quebec (through Richard Cayouette): 2 *plant specimens*. Royal Ontario Museum (through Dr. G. B. Wiggins): 6 *caddisflies*.  
 Canfield Fund, Smithsonian Institution: 6 *mineral specimens*.  
 Canning, Ken: 48 *mineral specimens*.  
 Canterbury, University of, New Zealand (through James K. Lowry): 13 *amphipods*.  
 Canzoneri, Dr. Silvano: 8 *Ephydrid flies, Italy* (see also Museo Civico de Storia Naturale).  
 Capriles, Dr. J. Maldonado: 532 *Hemiptera*, 97 *Lepidoptera* and *Diptera*, 464 *Coleoptera*; 696 *Hemiptera (exchange)*; 2 *assassin bugs* (see also Puerto Rico, University of).  
 Carestia, Maj. Ralph R. (see Defense, U.S. Department of).  
 Caribbean Marine Biological Institute, Curacao (through Dr. Jan H. Stock): 35 *crustaceans*.  
 Carleton University, Canada (through Dr. Stewart B. Peck): 109 *crustaceans*.  
 Carlson, Paul H.: 1,105 *Neuropteroids*.  
 Carnegie Museum (through Dr. George Wallace): 18 *chalcid-flies (exchange)*.  
 Carpenter, Ray: 3 *mineral specimens*.  
 Carriers, Bruno: 23 *mineral specimens. (exchanges)*.  
 Carter, John L.: 126 *brachiopod fossils*.  
 Casey Fund, Smithsonian Institution: 4,033 *Coleoptera, Africa and South America*.  
 Cashatt, Dr. E. D.: 2 *small moths, Central America*.  
 Cather, Mary R.: 10 *caddisflies*.  
 Causey, Dr. Nell B.: 34 *millipedes, including types*.  
 Cayouette, Richard (see Canada, Government of).  
 Central University of Venezuela (through Rafael M. Escarbassiere): 39 *marine mollusks*.  
 Centre National Pour L'Exploitation Des Oceans, France (through Dr. Roger Hekinian): 9 *deep sea basaltic rock specimens*.  
 Cernohorsky, Walter O.: 9 *mollusks (exchange)*.  
 Chai, Paul (see Malaysia, Government of).  
 Chamberlain Fund, Smithsonian Institution: 5 *mineral specimens*.  
 Chambers, Dr. Kenton L. (see Oregon State University).  
 Chambers, Mr. and Mrs. W. Craig: *cut tanzanite*.  
 Chan, Ky (see Chinese University of Hong Kong).  
 Chandler, Donald S.: 4 *beetles*.  
 Chapin, Dr. Joan B.: 6 *beetles* (see also Louisiana State University).  
 Chapman, Dr. Carl (see Miami Sea Aquarium).  
 Chatham County Mosquito Control Commission, Georgia (through Virginia T. Mullen): 6 *crustaceans*.  
 Chaw, Dr. Lai Hoi (see Universiti Sains Malaysia).  
 Chelan County Cooperative Extension Service, Washington (through John M. Lange): 3 *freshwater mollusks*.

- Chemsak, Dr. John: 15 *beetles*.
- Chew, Dr. Kenneth (see Washington, University of).
- Chick, Mrs. Walter G.: 115 *mineral specimens*.
- Child, C. Allan: 65 *worms*, 8 *sponges*, 41 *crustaceans*.
- Children's Museum, Rocky Mount (through Mrs. Mae Woods Bell) 40 *fossil specimens (exchange)*.
- Chinese University of Hong Kong (through Ky Chan): 105 *legume specimens (exchange)*.
- Chirichigno F., Dr. Norma (through Dr. B. B. Collette): 4 *fishes*, Peru.
- Chiswell, Alfred G., Jr.: *stone celt*.
- Chogyal and Gyalmo of Sikkim: *silver brazier*.
- Christie, Mrs. Lillian G.: 32 *Ojibwa Indian clothing specimens*, Canada, in memory of Ronald Christie.
- Churcher, Dr. C. S.: 2 *casts of fossil bovid remains*.
- Churkin, Dr. Michael, Jr. (see Interior, U.S. Department of the).
- Clark, Barbara A. (see Massachusetts, University of).
- Clark, Dr. Donald, Jr.: 4 *bats*.
- Clark, Elizabeth C. (see Wilcox, Howard).
- Clastrier, Dr. J.: 20 *flies*, Palearctic.
- Closs, Dr. Darcy: 1 *isopod*, Brazil.
- Cobban, Dr. W. A. (see Interior, U.S. Department of the).
- Cochrane, Theodore S. (see Wisconsin, University of).
- Coffey, Vince (see Georgia, University of).
- Cogan, Dr. Brian (see Britain, Government of).
- Cohen, Mrs. Anne: 15 *marine mollusks*, Azores.
- Cohen, Dr. Daniel M. (see Oregon State University and Krefft, Dr. Gerhard).
- Coleman, Neville: 85 *echinoderms*, Australia.
- Collette, Dr. B. B. (see Bauchot, Dr. M. L.; California Academy of Sciences; Chirichigno F., Dr. Norma; Rijksmuseum van Natuurlijke Historie; and Universidad Nacional de Colombia).
- Collins, Dr. Charles: *bird skeleton*.
- Colorado, University of: Museum (through Dr. William A. Weber): 132 *plant specimens (exchange)*.
- Columbia University: College of Physicians and Surgeons (through Dr. John J. Rasweiler IV): 34 *bats*, Colombia. Lamont-Doherty Geological Observatory (through Dr. Davida Kellogg): 10 *Eocene radiolaria*, Norwegian Sea.
- Commerce, U.S. Department of: National Oceanic and Atmospheric Administration: Auke Bay Fisheries Laboratory (through Louis Barr): 6 *shrimp*. Marine Geology and Geophysics Laboratory (through Robert S. Dietz): 12 *shocked coconino sandstone specimens*. National Marine Fisheries Service (through Milton J. Lindner): 18 *crustaceans*, Gulf of Mexico; (through Dr. Richard B. Roe): 10 *echinoderms*; 235 *crustaceans*; (through Carl H. Saloman): 3 *crustaceans*; (through Dr. Paul Struhaaker): 2 *fish*, including type. Systematics Laboratory (through Dr. Austin B. Williams): 1,050 *crustaceans*.
- Commonwealth Institute for Biological Control, India (through Dr. Sudha Nagarkatti): 2 *chalcid-flies*, Japan.
- Commonwealth Institute of Entomology, Great Britain (through Dr. Z. Boucek): 145 *chalcid-flies*; (through Dr. Douglas J. Williams): 8 *scale insect slides*.
- Connolly, Dr. T. F. (see Oak Ridge National Laboratories).
- Conrad, Dr. Melvin L. (see Northeast Missouri State University).
- Conservatoire et Jardin Botaniques, Switzerland: 40 *plant specimens (exchange)*; (through Dr. C. E. B. Bonner): 528 *plant specimens (exchange)*.
- Coogan, Dr. A. H.: 43 *invertebrate fossils*.

Cook, Dr. David G.: 20 *oligochaetes* slides, including types.  
 Cooke, Dr. William J.: 4 *medusae*.  
 Cooper, Mrs. John H.: 2 *marine mollusks*.  
 Cooper, Dr. Kenneth W.: 2 *scorpion flies*.  
 Cooper, Martha R. and John E.: 7 *crustaceans*.  
 Cooper, Dr. Robert W., and Hendrickx, Dr. Andrew G.: 143 *primate specimens*.  
 Copenhagen, University of: 200 *plant specimens*; (through Dr. Jorgen Nielsen): 3 *fishes*.  
 Corcoran, Edward J. (see Beck, Dorothy Bateman, Estate of).  
 Corey, Roscoe: *danalite specimen*.  
 Cornell University (through Dr. William L. Brown, Jr.): 3 *ants (exchange)*; (through Drs. Robert Dickerman and Charles Seymour): 127 *bats, Guatemala*. L. H. Bailey Hortorium (through Dr. Harold E. Moore, Jr.): 1 *melastomataceae, Costa Rica*; (through Dr. Margaret H. Stone): 165 *plant specimens (exchanges)*. Veterinary College (through Dr. Howard E. Evans): 1 *land snail, Sapelo Island*.  
 Correia, R. F.: *bivalve mollusk* (see also Virginia Commonwealth of).  
 Correll, Dr. Donovan S.: 1 *phanerogam, type*.  
 Cortes, Dr. Raul: 11 *tachinid flies, Chile*.  
 Coull, Dr. Bruce C. (see Bermuda Biological Station for Research and South Carolina, University of).  
 Craig, Gen. and Mrs. Louis A.: 8 *American Indian ethnological objects, 4 pottery objects, embroidered skirt, China*.  
 Crawford, Dr. C. S.: 20 *centipedes*.  
 Crawford, David: 2 *benstonite specimens*.  
 Crick, W. M.: *beetle*.  
 Croat, Dr. Thomas B. (see Missouri Botanical Garden).  
 Crosnier, Dr. Alain: 53 *crustaceans* (see also France, Government of).  
 Cross, Mr. and Mrs. Jarrett L.: 2,275 *beetles, North America*.  
 Cuatrecasas, Dr. Jose: 1,000 *plant specimens, Venezuela*.  
 Cuello, Juan (see Museo Nacional de Historia Natural).  
 Cumbaa, Stephen L. (see Florida, University of).  
 Currier, Rock: 2 *mineral specimens*.  
 Curtis, Dr. Doris M.: 92 *ostracod slides, Miocene*.  
 Czechoslovakia, Government of: National Museum in Prague: 50 *bryophytes (exchange)*.  
 Dahl, Arthur L. (see Sheen, Michael).  
 Dailey, Dr. D. Charles: 10 *wasps and galls, including types*.  
 Dalhousie University, Canada: Institute of Oceanography (through Dr. Gareth Harding): 2 *crustaceans*; (through Byron Morris): 5 *crustaceans, 4 slides*.  
 Dallas Museum of Natural History (through Dr. Richard W. Fullington): 6 *land snails*.  
 Daniel, Dick (see California, State of).  
 Darlington, Dr. P. J., Jr. 279 *ground beetles*.  
 Darnel, Mrs. Delbert A.: 3,500 *mineral micromounts*.  
 Davidse, Dr. Gerrit (see Missouri Botanical Garden).  
 Davidson, Capt. Jerry M. (see Defense, U.S. Department of).  
 Davidson, Dr. John (see Maryland, University of).  
 Davis, Mrs. Brooks: *hemimorphite, Mexico*.  
 Davis, Lee E.: 2 *bamboo specimens*.  
 Davis, Dr. W. J.: *fossil whale skull*.  
 Dawson, Dr. C. E. (see Gulf Coast Research Laboratory Museum).  
 Day, J. H.: 2,714 *polychaetes, including types*.  
 Dayrit, Fernando G.: 59 *mollusks, Philippines*.



Dearborn, Dr. J. (see Stanford University).  
 deAzevedo, Selma Barreto (see Laboratorio de Ciencias do Mar).  
 deButts, Henry M. (see Western Airlines).  
 Deeming, John C.: *25 house flies, Africa* (see also Ahmandu Bello University).  
 Defense, U.S. Department of: Department of the Air Force (through Capt. Jerry M. Davidson): *67 moths*; (through Dr. Charles S. Sahagian): *32 synthetic crystals*. Department of the Army: *210 plant specimens*; (through Maj. Ralph R. Carestia) *300 mollusks*; (through Dr. K. C. Emerson): *907 lice*; (through E. L. Peyton): *26 mosquitoes*. Department of the Navy (through Dr. K. C. Emerson): *115 lice*; (through Dr. E. C. Haderlie): *8 ostracods*; (through William R. McBride): *12 retgersite crystals*; (through Lawrence Pugh): *75 lots larval fish, 52,192 crustaceans*; (through John Schindler): *5 birds*.  
 deGranville, Dr. J. J. (see France, Government of).  
 Deignan, Mrs. Herbert G.: *101 anthropological specimens, mostly Thailand*.  
 Deinhardt, Dr. Frederick (see Rush-Presbyterian St. Luke's Medical Center).  
 Delaware, University of (through Dr. Les Watling): *2 ostracod slides, 3 isopods*.  
 Delaware Museum of Natural History (through Dr. R. Tucker Abbott): *freshwater clam (exchange)*.  
 Del Mar College (through Dr. Robert D. Barnes): *3 fish specimens*.  
 De Lotto, Giovanni (see Plant Protection Research Institute).  
 Demaree, Delzie (see Arizona State College).  
 de Panza, Elisa N. (see Universidad de Buenos Aires).  
 de Quoy, Gen. Alfred (see Irish Wolfhound Club of America).  
 de Rageot, Roger: *10 small mammals*.  
 de Rojas, Carmen E. B. (see Universidad Central de Venezuela).  
 de Souza Sob., Ranulpho (see Universidade Federal de Santa Catarina).  
 Desqueyroux, Ruth (see Universidad de Concepcion).  
 Devaney, Dr. Dennis M.: *polychaete, Hawaii (exchange)* (see also Bernice P. Bishop Museum).  
 de Will, Dr. Wallace (see Interior, U.S. Department of the).  
 Dexter, Deborah M.: *50 echinoderms, Panama*.  
 Diamond Sales Co. (through Richard Swaebe): *14 mineral specimens (exchanges)* (see also Hansen's Minerals, Inc.).  
 Dickerman, Dr. Robert W.: *bird skin* (see also Cornell University).  
 Dieterle, Mrs. Jennie V. A. (see Michigan, University of).  
 Dietz, Robert E., IV: *939 Lepidoptera and Diptera, 99 Neuropteroids, 90 Coleoptera, 176 Hemiptera and Hymenoptera*.  
 Dietz, Robert S. (see Commerce, U.S. Department of).  
 Dmitriev, Dr. L.: *4 mineral specimens, USSR*.  
 Dodds, Mrs. Mary: *5 clausthalite specimens*.  
 Dodson, Dr. Calaway H. (see Marie Selby Botanical Gardens).  
 Dombrowski, Luiza Thereza Deconto (see Instituto de Defesa do Patrimônio Natural).  
 Dominick, Dr. Richard B.: *67 moths and freeze-dried larvae*.  
 Donnelly, Dr. T. W.: *40 caddisflies; 99 dragonflies (exchange)*.  
 Dooley, James K. (see North Carolina, University of).  
 Dorrance, John C.: *2 pairs ritual shoes, Australia*.  
 Doty, Dr. Matwell S. (see Hawaii, University of).  
 Douglas, Dr. Neil H. (see Northeast Louisiana University).  
 Douglass, Dr. Raymond (see Interior, U.S. Department of the).  
 Dozier, Dr. Herbert L.: *10 darkling beetles, New Guinea; 5 Hemiptera and Hymenoptera; 101 beetles (exchange)*.  
 Drewes, Harold (see Interior, U.S. Department of the).

Druckenbrod, Lawrence Michael: 4 *ground beetles*; 659 *Neuropteroids*.  
Dudley, Dr. T. (see Agriculture, U.S. Department of).  
Duke University: 75 *botanical specimens (exchanges)*; (through Dr. Joseph R. Bailey): 262 *crustaceans*; (through Marjorie Watkins): 55 *bryophytes (exchange)*; (through Dr. Myron L. Wolbarsht): 11 *galagos*. Marine Laboratory (through Dr. Gilbert T. Rowe): 2 *amphipods*.  
Dunn, Dr. D. B. (see Missouri, University of).  
Dunn, Pete J.: 84 *mineral specimens*; 72 *grams beryllonite, Maine*.  
Dunn, Wilbur F.: *portion of Cetothere skeleton, Miocene*.  
Durham, Dr. Jean (see California Academy of Sciences).  
Dybas, Henry: 11 *beetles*.  
East African Marine Fisheries Research Organization (through Dr. A. J. Bruce): 5 *crustaceans*.  
Eccles, David H.: 83 *lots fish specimens, Africa*.  
Ecole Polytechnique, Canada (through Dr. J. C. Sisi): 9 *mineral specimens (exchange)*.  
Edmunds, Dr. George F., Jr., and Peters, Dr. William L.: 158 *stoneflies, Malaysia*.  
Ege University, Turkey (through Mustafa U. Saritas): 26 *sponges and slides*.  
Eisler, Ronald (see Environmental Protection Agency).  
Eiten, Dr. George (see Universidade de Brazilia and Instituto de Botanica).  
Eklund, Mrs. Carl R.: 4 *antarctic bird eggs; feather blanket, 2 pairs boots, Eskimo*.  
Elberg, Dr. K. (see Academy of Sciences of the USSR).  
Elliott, Dr. William R.: 10 *aquatic beetles, Mexico* (see also Texas Tech University).  
Ellis, Dr. R. A. (see Canada, Government of).  
Ellison, Mrs. W. L.: 21 *bird skins, Brazil*.  
Elsik, William C.: 17 *pollen and spore specimens, types*.  
Emerson, Dr. K. C.: 638 *lice* (see also Defense, U. S. Department of).  
Enamait, Ed (See Maryland, State of).  
England, Kent: *melanophlogite specimen (exchange)*.  
Environmental Protection Agency (through Ronald Eisler): 3 *clam specimens*.  
Eotvos University, Hungary (through Dr. A. Borhidi): 1 *plant specimen, Cuba*.  
Erskine College (through Dr. James G. Saxon): 257 *fishes*.  
Erwin, Dr. Terry L.: 10,434 *insects*.  
Escarbassiere, Rafael M. (see Central University of Venezuela).  
Eschmeyer, Dr. W. N. (see California Academy of Sciences).  
Eskow, Mrs. Seymour: *cord-bound coconut water canteen, Gilbert Islands*.  
Estevez, Ernest (see South Florida, University of).  
Etnier, Dr. David A. (see Tennessee, University of).  
Evans, Dr. Clifford: 160 *archeological artifacts, Ecuador*.  
Evans, Dr. Howard E. (see Cornell University).  
Even, Lance: *mollusk specimen*.  
Ewart, W. H. (see California, University of).  
Ewell, G. O.: *cervical vertebrae of Balaena mysticetus, Pleistocene*.  
Ewing, Rod: *mineral specimen*.  
Exxon Co. (through Duane O. LeRoy): 5 *foraminifera type specimens*.  
Faculte des Sciences Agronomiques, Belgium (through Dr. Jean Leclercq): 74 *bees*.  
Fales, Col. and Mrs. Clark Kent: *Chinese costume, 2 Indonesian weapons*.  
Faulkner, Douglas: 3 *crustaceans*.  
Faunalabs, Inc. (through Dr. Neil B. Todd): 50 *frozen domestic cats*.  
Fay, Dr. Rimmon (see Pacific Bio-Marine Supply Co.).  
Felder, Darryl L. (see Louisiana State University).



- Ferguson, Mrs. A. L. L. (through Dr. Marshall T. Newman): 154 *human skeletal remains*.
- Ferguson, Dr. Douglas C.: 9,500 *moths* (see also Agriculture, U. S. Department of).
- Fernald, Dr. Robert L. (see Washington, University of).
- Fernandez, Dr. A. (see Portugal, Government of).
- Ferreira, Dr. Ramon: *thread snake, type, Peru* (see also Universidad Nacional Mayor de San Marcos).
- Fiance, Samuel: 25 *stoneflies*.
- Field Museum of Natural History: 1 *Bromeliaceae*; 103 *plant specimens* (exchange); 391 *plant specimens* (gift-exchange); (through Dr. Robert K. Johnson): 6 *fishes, Colombia* (exchange); (through H. G. Nelson): 42 *water beetles* (exchange); (through Dr. Lorin I. Nevling, Jr.): 112 *plant specimens* (exchanges); 203 *plant specimens* (gift-exchange).
- Fielding, Herbert: *bowenite specimen*.
- Figueiras, Dr. Manuel Lopez (see Universidad de los Andes).
- Fincham, Dr. Anthony A. (see Victoria University of Wellington).
- Finney, Dr. Colin M. (see New York Ocean Science Laboratory).
- Fischer-Piette, E.: *worm specimen*.
- Fish, Marjorie E.: *mask and comb, New Guinea*.
- Fishbein, Dr. (see Health, Education, and Welfare, U. S. Department of).
- Fisher, Dr. T. W. (see California, University of).
- Fittkau, Dr. E. J. (see Max-Planck Institut fur Limnologie).
- Flavill, Paul: 34 *water beetles*.
- Fleischer, Dr. Peter: *mineral specimen*.
- Fleminger, Dr. Abraham (see California, University of).
- Flensburg, Imga: 5 *mineral specimens* (exchange).
- Flint, Mrs. C. M.: 169 *dragonflies*.
- Flint, Dr. Oliver S., Jr.: 574 *lacewings*.
- Florida, State of: Department of Agriculture (through Dr. E. E. Grissell): 2 *chalcid-flies*. Department of Natural Resources (through David K. Camp): 8 *marine squid*; (through Dr. William Lyons): 34 *echinoderms*.
- Florida, University of: 62 *mosses, Venezuela*; 60 *bryophytes, Costa Rica*; (through Dr. Daniel B. Ward); 1 *gnaphalium*. Florida State Museum (through Stephen L. Cumbaa): 3 *casts of fossil remains of rare seal*; (through Dr. Carter R. Gilbert): 170 *crustaceans*.
- Florida State University: 30 *plant specimens*; (through D. Bruce Means): 4 *crustaceans*; (through Dr. Allen Z. Paul): 1 *isopod, high Arctic*.
- Flower, Dr. Rousseau: 4 *land snails*.
- Folkerts, Dr. George W.: 14 *water beetles*.
- Foote, Dr. Richard H. (see Agriculture, U. S. Department of).
- Ford, E. J.: 3 *beetles*.
- Forest, Dr. J. (see Museum National d'Histoire Naturelle).
- Formas C., Ramon (see Universidad Austral de Chile).
- Forschungs-Institut Senckenberg (through Dr. Rudolf Birenheide): 6 *fossil specimens*, 2 *thin sections, Middle Devonian*.
- Foster, Kenneth, Jr. (see Bode, Mrs. Helen Spalding, Estate of).
- France, Government of: Office de la Recherche, Scientifique et Technique Outre-Mer: 7 *botanical specimens, South America*; (through Dr. Alain Crosnier): 211 *crustaceans*; (through Dr. J. J. deGranville): 9 *botanical specimens, South America*; (through Dr. R. A. A. Oldeman): 16 *botanical specimens, French Guiana*.
- Franclemont, Dr. John G.: 3 *millipedes*.
- Freude, Dr. H.: 8 *beetles*.
- Frey, Dr. David G. (see Indiana University).



Friends of Mineralogy (through Dr. Joel E. Arem): *45 mineral specimens*.  
 Froggia, Carlo (see Laboratorio di Tecnologia della Pesca).  
 Frommer, Dr. Saul I.: *7 beetles*.  
 Frondel, Dr. Clifford: *barylite specimen*.  
 Frost, Dr. S. W.: *squash bug*.  
 Fujimoto, Hozan: *2 porcelain bowls, Japan (exchange)*.  
 Fujimura, Takuji (see Aquaculture International (Australia) Pty. Ltd.).  
 Fuller, Dr. Samuel L. H. (see Academy of Natural Sciences of Philadelphia).  
 Fullington, Dr. Richard W. (see Dallas Museum of Natural History).  
 Funasaki, Dr. George (see Hawaii, State of).  
 Funk, Dr. Richard S.: *2 leeches*.  
 Furman, Dr. Deane P.: *55 mite slides, including types*.  
 Futrell, Darryl: *4 tridymite specimens*.  
 Gaeth, Mr. and Mrs. Douglas E., and Valenza, Mr. and Mrs. Angelo D.:  
     *bald-faced hornet nest*.  
 Gagne, Dr. Raymond J.: *350 gall midges*.  
 Gallo, Dr. Sergio: *15 mineral specimens, Italy (exchange); 2 melanophlogite  
     specimens, Italy*.  
 Galt, Mrs. Jolly H. (see Washington, University of).  
 Garth, Dr. John S. (see Southern California, University of).  
 Gauthier, Gilbert: *6 mineral specimens, Africa (exchange)*.  
 Gaver, Mrs. G. P.: *mah-jong game set*.  
 Geijskes, Dr. D. C. (see Rijksmuseum van Natuurlijke Historie).  
 George, Gilbert: *2 serandite specimens, Canada*.  
 Georgia State University (through Dr. Charles H. Wharton): *120 crustaceans*.  
 Georgia, University of (through Vince Coffey): *Lysimachia specimen,  
     Alabama*. Marine Institute (through Richard W. Heard III): *Goneplacidae  
     specimen*.  
 Gerk, Arthur J.: *360 brachiopods, Iowa*.  
 Gibbs, Dr. Robert H.: *7 echinoderms, 40 mollusks, 174 crustaceans*.  
 Gibson, Dr. Gordon D.: *100 archeological specimens, Angola*.  
 Gilbert, Dr. B. Miles: *48 pubic bone casts*.  
 Gilbert, Dr. Carter R. (see Florida, University of).  
 Gillaspy, Dr. James E.: *3 moths, Texas*.  
 Gillis, Dr. William T. (see Harvard University).  
 Gillogly, Capt. Allen: *562 beetles*.  
 Gittins, Dr. John, (see Toronto, University of).  
 Glynn, Dr. Peter W. (see Smithsonian Institution).  
 Goff, Barney: *2 mineral specimens, Australia*.  
 Gogate, G. B.: *2 polychaete worms, India*.  
 Golden, Dr. A. M. (see Agriculture, U. S. Department of).  
 Goldman, Jane E.: *Apache Indian basket*.  
 Goldner, Mrs. Marion O.: *3 pieces of Chinese clothing, 2 Japanese pictures*.  
 Goldsmith, Merton J.: *2 marine mollusks*.  
 Goldstein, A. Edge: *1 lot mineral specimens*.  
 Gonsoulin, Dr. Gene: *93 styrax specimens*.  
 Goodson, Mrs. Ruby Bowe: *Cherokee Indian beaded bag*.  
 Goodyear, James: *6 beetles, Africa (exchange)*.  
 Gordh, Gordon: *3 chalcid-flies*.  
 Gordon, MacKenzie: *19 specimens and fragments of Ammonoidea (see also  
     Interior, U. S. Department of the)*.  
 Gore, Dr. Robert M. (see Smithsonian Institution).  
 Gorman, R. C. (see Australia, Government of).  
 Gorodkov, Dr. K. B. (see Academy of Sciences of the USSR).  
 Goteborgs Universitet, Sweden: *71 plant specimens, Ecuador*.

Gothenburg, University of, Sweden (through Dr. Anders Waren): 2 mollusks.  
 Gottsberger, Dr. Ilse S. (see Brazil, Government of).  
 Gramaccioli, Dr. Carlo M.: *mineral specimen, Italy (exchange)*.  
 Grand Valley State College (through Dr. Howard O. Wright): 22 *echinoderms*, 24 *marine mollusks*, 2 *worms*, *British Honduras*.  
 Great Britain, Government of: British Museum (Natural History) (through Dr. Brian Cogan): 6 *acalyptate flies (exchange)*; (through Roger Lubbock): 1 *fish*; (through Dr. Anthony L. Rice): 6 *crustaceans (exchange)*; (through R. Ross): 19 *fern photographs (exchange)*. Royal Botanic Gardens: 200 *plant specimens (exchange)*; (through J. Blewett): 131 *plants, Brazil (exchange)*; (through Dr. J. P. M. Brenan): 44 *plants, Aldabra (exchange)*; (through Peter Green): 104 *plants, Brazil (exchange)*; (through J. Heslop Harrison): 3 *plant specimens and 4 drawings*.  
 Green, Peter (see Great Britain, Government of).  
 Greenfield, Dr. David W. (see Northern Illinois University).  
 Grelen, Dr. Harold E. (see Agriculture, U. S. Department of).  
 Grigg, Ursula M. (see Saint Mary's University).  
 Grissell, Dr. E. E. (see Florida, State of).  
 Gross, Dr. G. E. (see South Australian Museum).  
 Gruenwald, M. Henri (see Mauritania, Government of).  
 Gruwell, John A.: 2,295 *grasshoppers*, 841 *moths*, 3,337 *bees*, 13,470 *beetles*, *Africa*.  
 Guam, University of (through Patrick Bryan): 7 *fish specimens*.  
 Guillemin, Dr. Claude: 2 *mineral specimens, France (exchange)*.  
 Gulf Coast Research Laboratory Museum (through Dr. C. E. Dawson): 2,203 *crustaceans*, 382 *mollusks*, 14 *fishes*, 34 *echinoderms*, 26 *lots worms*; (through Dr. R. W. Heard): 7 *crustaceans*; (through Walter Langley): *worm specimen*.  
 Gunther, Lloyd: 7 *fossil specimens, Middle Cambrian, Utah (exchange)*.  
 Gurney, Dr. Ashley B.: 1,294 *Neuropteroids, South America*.  
 Habe, Dr. Tadashige (see National Science Museum).  
 Haderlie, Dr. E. C. (see Defense, U. S. Department of).  
 Haick, Roger A.: 540 *Neuropteroids*.  
 Hale, William H.: *fossil cormorant bones, Nevada*.  
 Halpern, Jack: *jamesonite specimen*.  
 Hamid, Dr. Abdul: *stink bug, type, Asia*.  
 Hansen, Dr. Bruce F. (see Wisconsin, University of).  
 Hansen, Gary: 2 *calcite specimens (exchange)*; 1 *orpiment specimen, Peru* (see also Hansen's Minerals, Inc.).  
 Hansen's minerals, Inc. (through Gary Hansen): 3 *mineral specimens* (see also Diamond Sales Co.)  
 Hansen's Minerals, Inc., and Diamond Sales Co. (through Gary Hansen and Richard Swaebe): 1 *axinate specimen (exchange)*.  
 Hanson, Dr. Wilford J.: 52 *beetles*.  
 Harding, Dr. Gareth (see Dalhousie University).  
 Hardman, David: 1 *mendipite specimen*.  
 Hardy, Dr. Alan R. (see California, State of).  
 Hargraves, Audrey: 8 *echinoderms, Texas*, 18 *marine mollusks*.  
 Harman, Walter J.: 44 *worm slides* (see also Louisiana State University).  
 Harris, Mrs. Bessie B.: 24 *freshwater snails*.  
 Harris, Herbert S., Jr., and Simmons, Dr. Robert S.: 2 *crocodiles, Mexico*, 2 *snakes, Peru*.  
 Harris, Ronald E.: 7 *crustaceans*.  
 Harrison, J. Heslop (see Great Britain, Government of).  
 Harrison, Richard V.: 4 *crustaceans, British Honduras*.

Hartman, Dr. Willard D. (see Yale University)

Hartshorn, Gary S. (see Universidad de Costa Rica).

Harvard University (through Dr. James R. Kirkpatrick): *synthetic mineral specimen*. Arnold Arboretum (through Dr. William T. Gillis): 4 *Palmae*. Botanical Museum (through Dr. Richard Evans Schultes): 5 *plants*, *South America*. Geological Museum (through Dr. Jun Ito): 12 *synthetic rare earth silicates*. Gray Herbarium (through Dr. William T. Gillis): 5 *melastomataceae*; (through Dr. Reed C. Rollins): 2,594 *botanical specimens (exchanges)*. Museum of Comparative Zoology (through Dr. K. M. Boss): 64 *worms (exchange)*; (through George Buckley): 1,420 *mollusks (exchange)*; (through Michael H. Horn): 78 *crustaceans*; (through Dr. Bryan Patterson): *cast of Australopithecus right jaw*.

Hattori Botanical Laboratory, Japan: 50 *bryophytes (exchanges)*.

Hawaii, State of: Department of Agriculture (through Dr. George Funasaki): 2 *beetles*; (through William Rose): 5 *compositae*, *Mexico*.

Hawaii, University of (through Dr. Matwell S. Doty): 10 *algae, types*; (through William J. Hoe): 5 *bryophytes*. Lyon Arboretum (through Dr. Sharon S. Ishikawa): 290 *plant specimens (exchange)*. Institute of Marine Biology (through Dr. John M. Miller): 2 *Medusae*.

Hawkins, Dr. W. A., Jr.: *wasp*.

Hazel, Dr. Joseph E. (see Interior, U.S. Department of the).

Health, Education, and Welfare, U. S. Department of: Food and Drug Administration (through Dr. Fishbein): 2 *crustaceans*, *West Africa*. Public Health Service: National Communicable Disease Center (through Dr. Robert S. McLean): 34 *fishes*, 1 *toad*, 5 *lizards*. Rocky Mountain Laboratory (through Dr. Conrad E. Yunker); *mule deer skull*.

Heaney, Lawrence R. (see Minnesota, University of).

Heard, Dr. R. W. (see Gulf Coast Research Laboratory Museum).

Heard, Richard W., III (see Georgia, University of).

Hedlin, A. F.: *moth*.

Hekinian, Dr. Roger (see Centre National Pour L'Exploitation des Oceans).

Helm, Dr. June: *Eskimo skin bag*, *Alaska*.

Helsinki, University of, Finland (through Dr. Harri Harmaja): 18 *bryophytes (exchange)*.

Heming, B. S. (see Alberta, University of).

Henderson, Dr. Edward P.: *complete individual meteorite*; 11 *obsidian specimens*.

Hendrickx, Dr. Andrew G. (see Cooper, Dr. Robert W.).

Henry, Dr. Dora P. (see Washington, University of).

Herbario "Barbosa Rodrigues," Brazil: 345 *grass specimens*.

Herbarium Bradeanum, Brazil (through Dr. G. F. J. Pabst): 71 *botanical specimens*.

Herbarium Universitatis Napocensis, Romania: 124 *plant specimens (exchange)*.

Herman, Dr. Lee H., Jr.: 26 *beetles*.

Heron, Gayle (see Washington, University of).

Herrin, Dr. C. Selby (see Brigham Young University).

Hickey, Gerald: 31 *anthropological specimens*, *Vietnam*.

Hicks, Mrs. E. W.: 3 *quartz specimens*.

Hieke, Dr. F.: *ground beetle (exchange)*.

Hight, Dr. Mary Etta: 177 *squirrels*.

Hill, Dr. Clyde A.: 3 *mammal specimens*.

Hill, Dr. Inez: 2 *bowls*, *Cyprus*; *carved limestone sphere*, *Ethiopia*.

Hill, Louis W., Jr.: *Piegan Indian pipe bowl and bear figure*.

Hilsenhoff, Dr. William: 68 *stoneflies*.



- Hilty, Dr. Steven (see Arizona, University of).  
Hindman, James R.: *mineral specimen*.  
Hinshaw, Everett: *3 calcite specimens*.  
Ho, Dr. Pham-Hoang (see Universite de Saigon).  
Hoare, Dr. Richard D. (see Bowling Green State University).  
Hobson, Mrs. Katharine D.: *30 polychaetes*.  
Hodges, Dr. Ronald W.: *500 small moths*.  
Hoe, William J. (see Hawaii, University of).  
Hoffman, Dr. Richard L.: *198 insects*.  
Hokkaido University, Japan (through Kunio Amaoka): *fish specimen, type*.  
Holdridge, Dr. Leslie R.: *17 phanerogams, Costa Rica* (see also Tropical Science Center).  
Holland, Dr. C. G.: *460 archeological pottery and stone specimens*.  
Holland, Mrs. Malinda B.: *Sioux Indian beaded leggings and moccasins*.  
Hollingsworth, Charles: *8 polychaetes, Barbados*.  
Hollis, Julian: *142 bivalves, Lower Cretaceous, England (exchange)*.  
Holmgren, Dr. Patricia K. (see New York Botanical Garden).  
Holsinger, Dr. John R.: *1,915 crustaceans* (see also Old Dominion College).  
Hooff, Laura (see Wilcox, Howard).  
Hopkins, Dr. Carl D. (see California, University of).  
Horn, Michael H. (see Harvard University).  
Houbrick, Dr. Richard S.: *2,500 land and marine mollusks* (see also Smithsonian Institution).  
Houk, James L. (see California, State of).  
Houston, University of (through Rosalie F. Maddocks): *32 ostracod slides*.  
Howard, Fred: *156 crustaceans, Canada*.  
Hubricht, Leslie: *65 amphipods; 2 worm slides; 1 lot worms, 2 lots shrimp*.  
Huckett, Dr. H. C.: *22 Diptera*.  
Huggins, Dr. Charles W. (see Interior, U. S. Department of the).  
Huggins, Dr. Donald G.: *63 stoneflies, Alaska*.  
Hughes, Warren: *19 quartz specimens*.  
Humphrey, Dr. Philip S. (see Kansas, University of).  
Hunter, Jay V. (see Louisiana State University).  
Hunziker, Armando T. (see Universidad Nacional de Cordoba).  
Iishi, Dr. K.: *synthetic antigorite specimen (exchange)*.  
Illg, Dr. Paul L. (see Lynch, Dr. James E., and Washington, University of).  
Illinois Natural History Survey (through Warren U. Brigham): *7 coleoptera* (through Larry M. Page): *19 crayfishes*.  
Iltis, Dr. Hugh B. (see Wisconsin, University of).  
Indiana University (through Dr. David G. Frey): *2 crustaceans and 2 slides, Sweden*.  
Inland Fisheries Trust Inc. (through Michael Kennedy): *fish specimen, Ireland*.  
Institute of Plant Protection, USSR (through Dr. G. V. Mikolajev): *59 scarab beetles (exchange)*.  
Instituto de Botanica, Brazil (through Dr. George Eiten): *2,563 plant specimens; (through Dr. J. Mattos): 127 plant specimens*.  
Instituto de Ciencias Naturales, Colombia (through Padre L. Uribe): *6 Melastomataceae*.  
Instituto de conservacao de natureza, Brazil: *30 plant specimens*.  
Instituto de Defesa do Patrimoine Natural, Brazil: *25 Gramineae; (through Luiza Thereza Deconto Dombrowski): 187 botanical specimens*.  
Instituto Nacional de Pesquisas, Brazil: *11 Leguminosae*.  
Instituto Politecnico Nacional, Mexico (through Dr. J. Rzedowski): *88 plant specimens (exchange)*.  
Interior, U. S. Department of the: Bureau of Mines (through Elizabeth G.

Baglin): *vial of argentojarosite*; (through Dr. Charles W. Huggins): *2 vials of dawsonite*. Fish and Wildlife Service: *495 skins, 45 skeletons, 6 eggs of North American birds*; (through Dr. Donald E. Wilson): *1,053 mammals*. Geological Survey: *6 Tretomphalus bulloides, types*; (through Warren O. Addicott): *98 fossil gastropods and bivalves*; (through Dr. Jean M. Berdan): *216 fossil ostracods and brachiopods*; (through Dr. Michael Churkin, Jr.): *21 thin sections of Devonian corals and 52 slabs*; (through Dr. W. A. Cobban): *117 fossil specimens*; (through Dr. Wallace de Will): *1 Devonian nautiloid*; (through Dr. Raymond Douglass): *168 fusulinids thin sections, Chile*; (through Harold Drewes): *15 tertiary volcanic rocks*; (through MacKenzie Gordon): *1 cephalopod, Upper Devonian, Maryland*; (through Dr. Joseph E. Hazel): *3 drawers of ostracods*; (through Dr. Dick Janda): *1 fossil whale jaw, Oregon*; (through Edward M. MacKevett, Jr.): *20 analyzed rocks, Alaska*; (through Dr. S. H. Mamay): *4 paleozoic insects, New Mexico*; (through Dr. Daniel J. Milton): *3 lots churchite/florenceite, California*; (through Mary Mrose): *1 suite of phosphate minerals, Brazil*; *1 clinobisuanite, Australia*; (through Dr. George J. Neuerburg): *1 galkhaite specimen, Nevada*; (through Dr. John Pojeta): *3 drawers of Silurian and Devonian Pelecypods*; (through Dr. Reuben J. Ross, Jr.): *1 Blastoidocrinus*; (through Harold Saunders): *5 quartz specimens, Arkansas*; (through Dr. William N. Sharp): *5 vials of kogarkoite, Colorado*; (through R. P. Sheldon): *18 mineral specimens*; (through Dr. I. G. Sohn): *100 ostracods, 14 slides*; (through Dr. James Sprinkle): *206 crinoids*; (through Ellis L. Yochelson): *222 fossil specimens, including types*. National Park Service (through Roland R. Wauer): *2 leeches, Texas*.

International Paper Co. (through David G. Bernard): *tourmaline specimens*. Iowa State University (through Dr. Richard W. Pohl): *16 grass specimens, Costa Rica (exchange)*; *7 Gramineae, Peru*.

Ireland, Dr. R. R. (see National Museum of Natural Sciences).

Irish Wolfhound Club of America (through Gen. Alfred de Quoy): *dog skeleton*.

Irvine, John W., Jr.: *lacrosse sticks*.

Ishikawa, Dr. Sharon S. (see Hawaii, University of).

Island Resources Foundation, Inc. (through William E. Rainey): *6 crustaceans*.

Ito, Dr. Jun (see Harvard University).

Iwamoto, Dr. Tomio (see California Academy of Sciences).

Jackson, James F.: *15 fungus gnats, British Honduras*.

Jacksonville University (through Dr. Kenneth Relyea): *2 crustaceans*.

Jacobi, Dr. Gerald Z.: *15 beetles* (see also Wisconsin State University).

Jakowska, Dr. Sophie: *1 echinoid, Dominican Republic*.

Janda, Dr. Dick (see Interior, U. S. Department of the).

Jaxel, Robert: *5 mineral specimens*.

J. E. Purkyne University, Czechoslovakia (through Dr. R. Rozkosny): *7 marsh flies*.

Jewell, Dana: *53 mineral specimens*.

Jirak, Dr. Ivan L.: *4 mineral specimens*.

Johns-Manville Corp. (through Julie C. Yang): *9 vials of mineral specimens*.

Johnson, Andrew: *7 ethnological specimens, Philippine Islands*.

Johnson, Arthur F. (see Virginia, Commonwealth of).

Johnson, Dr. Gerald H. (see Smith, David).

Johnson, Dr. Jesse G.: *460 fossil specimens*.

Johnson, Richard I.: *mollusk specimen, type*.

Johnson, Dr. Robert K. (see Field Museum of Natural History).

Johnston, Dr. Marshall C. (see Texas, University of).

Jolinson, Jean Claude (see Museum National d'Histoire Naturelle).

Jones, Henry A. (see Smithsonian Institution).  
 Jones, Dr. Meredith (see American Museum of Natural History).  
 Jones, Dr. Robert H.: *10,900 flies*.  
 Jouanin, Dr. Christian (see Museum National d'Histoire Naturelle).  
 Judkins, Dr. David C. (see Woods Hole Oceanographic Institution).  
 Kansas, University of (through Dr. Philip S. Humphrey): *39,268 land and freshwater mollusks*.  
 Kansas State University (through Dr. T. M. Barkley): *plant specimen*.  
 Kaplan, Ronald D.: *86 stoneflies*.  
 Katholieke Universiteit, The Netherlands (through Dr. F. Lukoschus): *12 mite slides*.  
 Kato, Dr. Akira: *5 mineral specimens*.  
 Kauffman, Dr. E. G. (see Saul, Dr. Louella).  
 Kavanaugh, David: *52 centipedes, Aleutian Islands*.  
 Kazan, Peter: *snout beetle, South America*.  
 Keil, Dr. Klaus (see New Mexico, University of).  
 Keller, Peter (see Texas, University of).  
 Kelley, Richard N.: *3 chips of Helvite, Canada*.  
 Kellogg, Dr. Davida (see Columbia University).  
 Kellogg, Mrs. Stuart: *250 land and marine mollusks*.  
 Kelly, F. R. (see Lloyd, Mrs. Frances K.).  
 Kendall, Elizabeth: *4 Philippine helmets, 2 Chinese flags*.  
 Kenk, Dr. Roman: *23 worms, including type*.  
 Kennedy, Helen: *15 plant specimens*.  
 Kennedy, Hugh: *mineral specimen, Brazil*.  
 Kennedy, Michael (see Inland Fisheries Trust, Inc.).  
 Kennedy, Dr. W. J.: *200 fossil specimens, mostly mollusks*.  
 Khartoum, University of, Sudan (through J. R. Vail): *meteorite specimen*.  
 Kilburn, R. N. (see Natal Museum).  
 Kimball, Kenneth: *190 Neuropteroids, Iran*.  
 King, Robert M.: *123 Hemiptera and Hymenoptera, Costa Rica; 31 Compositae, Mexico*.  
 King, Vandall T.: *5 mineral specimens*.  
 Kingsley, Mrs. Charles P.: *suit of Japanese Samurai armor, Persian war axe*.  
 Kingsley, William: *Japanese Samurai sword*.  
 Kirkpatrick, Dr. James R. (see Harvard University).  
 Klemm, Donald J.: *3 leeches*.  
 Knapp, Dr. Leslie W. (see Smithsonian Institution).  
 Knez, Dr. Eugene I.: *shoes, bowl, ceremonial belt, Korea; scroll and 3 ethnological specimens, Bhutan*.  
 Knight, James: *Botallackite specimen, England (exchange)*.  
 Knobloch, Dr. Irving W.: *108 plant specimens, Mexico*.  
 Knowlton, Dr. George F.: *517 Coleoptera; 167 Myriapoda and Arachnida*.  
 Kobe University, Japan: *33 sawflies (exchange)*.  
 Koch, Dr. L. E. (Western Australian Museum).  
 Kohn, Dr. Alan J.: *2,610 polychaetes, Easter Island*.  
 Komarek, E. V.: *1,409 Neuropteroids*.  
 Komarov Botanical Institute of the USSR: Herbarium (through Dr. I. T. Vassilczenko): *200 plant specimens (exchange)*.  
 Kornicker, Dr. L. S.: *10,184 crustaceans*.  
 Koyama, Hiroshige (see National Science Museum).  
 Kraeuter, Dr. John N.: *5 marine mollusks*.  
 Kral, Dr. Robert (see Vanderbilt University).  
 Krapovickas, Antonio (see Universidad Nacional del Nordeste).  
 Krauss, N. L. H.: *4 crustaceans; 594 Diptera*.



Krefft, Dr. Gerhard (through Dr. Daniel Cohen): *4 worms, 52 crustaceans*.  
 Krombein, Darlissa B.: *cicada specimen*.  
 Kruczynski, William L.: *10 freshwater mollusks*.  
 Kues, Dr. Barry S.: *marine mollusk*.  
 Kushner, Ervan F.: *3 mineral specimens*.  
 Laboratorio de Ciencias do Mar, Brazil (through Selma Bareto de Azevedo):  
*8 fish specimens*.  
 Laboratorio di Tecnologia Della Pesca, Italy (through Carlo Frogia): *156*  
*crustaceans (exchange)*.  
 Lafayette College (through Dr. Arthur Montgomery): *mineral specimen, Dutch*  
*Antilles*.  
 Lajmi, Mohamed (see Smithsonian Institution).  
 Lakela, Dr. Olga (see South Florida, University of).  
 Lambers, Dr. D. Hille Ris: *aphid slide, Africa*.  
 Landrum, Betty J. (see Smithsonian Institution).  
 Lane, Dr. N. Gary (see California, University of).  
 Langley, Walter (see Gulf Coast Research Laboratory Museum).  
 Larsen, Dr. Kai (see Arhus Universitet).  
 Larsen, Ronald J. (see Puerto Rico, University of).  
 Larson, William: *40 mineral specimens* (see also Pala Properties International).  
 Lasmanis, Raymond: *arsenic specimen, Canada*.  
 Laurence University (through Dr. Allen M. Young): *17 plant specimens, Costa*  
*Rica*.  
 Laurent, M. de Saint (see Museum National d'Histoire Naturelle).  
 Lavigne, Dr. Robert J.: *152 ants, types, Puerto Rico*.  
 Lawrence, Dr. J. (see South Florida, University of).  
 Lawrence, Dr. John F.: *4 fungus beetles*.  
 Lawson, Dr. Thomas J. (see Woods Hole Oceanographic Institution).  
 Leclercq, Dr. Jean (see Faculte des Sciences Agronomiques).  
 Lee, Dr. Albert F.: *pottery whistle, Mexico*.  
 Lee, C. Bruce: *2 Lepidoptera, Asia*.  
 Lee, Dr. D. C. (see South Australian Museum).  
 Lee, Lester (through William W. Warner): *marine mollusk*.  
 Leech, Dr. Hugh B.: *561 beetles (exchange)*.  
 Lees, Dennis C. (see Marine Biological Consultants, Inc.).  
 Lehigh University (through Dr. J. D. Ryan): *13,996 Peruvian fossils, 4 land*  
*mollusks*.  
 Lehto, Elinor (see Arizona State University).  
 Leicht, Wayne: *6 mineral specimens (exchange)*.  
 Lembaga Oceanologi Nasional, Indonesia (through Kasim Moosa): *2*  
*crustaceans*.  
 Lerer, Mrs. Edna: *9 mineral specimens*.  
 LeRoy, Duane O. (see EXXON Co.).  
 Lessing, Dr. Peter: *vial of zoned andradite*.  
 Leveque, Dr. Ch. (see Station de Recherches de Zoologie).  
 Levinson, S. A.: *8 ostracod slides*.  
 Lewis, Dr. David J.: *32 biting flies*.  
 Lewis, Mrs. John S. (see Lewis, Rear Adm. John S., Estate of).  
 Lewis, Rear Adm. John S., Estate of (through Mrs. John S. Lewis): *carved*  
*wooden figure, Solomon Islands (bequest)*.  
 Lidstrom, Walter (see Lidstrom Minerals).  
 Lidstrom Minerals (through Walter Lidstrom): *15 mineral specimens,*  
*(exchanges)*.  
 Lie, Ulf (see Washington, University of).  
 Lieftinck, Dr. M. A.: *wasps, Europe*.

- Lindner, Milton J. (see Commerce, U. S. Department of).
- Little, Dr. Elbert L., Jr. (see Agriculture, U.S. Department of).
- Liverpool Polytechnic, Great Britain (through Dr. Malcolm Luxton): 5 mite slides.
- Lloyd, Mrs. Frances K., Kelly, J. M., Jr., and Kelly, F. R.: *Chippewa Indian beaded cloth cap*.
- Lobl, Dr. Ivan (see Museum d'Histoire Naturelle).
- Loftesnes, Capt. E.: *mineral specimen, Norway*.
- Long, Charlene D.: 11 *echinoderms*, 7,012 *polychaete worms*, 36 *phoronida worm slides*, 16 lots insects.
- Long, Charles A. (see Wisconsin, University of).
- Long, Edward R. (see Oregon State University).
- Long, Robert W. (see South Florida, University of).
- Loomis, H. F.: *millipede*.
- Lopes, Dr. H. de Souza: 225 *fleshflies, South America*.
- Los Angeles County Museum of Natural History (through Dr. James H. McLean): 140 *marine mollusks*.
- Louisiana State University (through Dr. Joan B. Chapin): 6 *moths*; (through Darryl L. Felder): 38 *crustaceans*; (through Walter J. Harman): 4 *worm slides*; (through Jay V. Hunter): 2 *crayfish*; (through Dr. George H. Lowery, Jr.) *bird mummy, Philippines (exchange)*.
- Lourteig, Dr. Alicia (see Museum National d'Histoire Naturelle).
- Lowery, Dr. George H. (see Louisiana State University).
- Lowry, James K. (see Canterbury, University of).
- Lubbock, Roger (see Great Britain, Government of).
- Ludlow, Smith, and Cann, Inc. (through F. L. Smith): 38 *mineral specimens (exchanges)*.
- Lugton, Ralph: 3 *beryl specimens*.
- Lukoschus, Dr. F. (see Katholieke Universiteit).
- Lutze, Dr. Gerhard F. (see Universitat Kiel).
- Luxton, Dr. Malcolm (see Liverpool Polytechnic).
- Lyko Mineral and Gem, Inc. (through Jack Young): 10 *mineral specimens (exchanges)*; 6 *mineral specimens*.
- Lynch, Dr. James E. (through Dr. Paul L. Illg): 8 lots *worms*, 200 *mollusks*, 63,689 *crustaceans*.
- MacCord, Col. Howard A. (see Virginia, Commonwealth of).
- MacKevett, Edward M., Jr. (see Interior, U. S. Department of the).
- MacLean, Dermid: 6 *mineral specimens*.
- Maddocks, Rosalie F. (see Houston, University of).
- Madurai University, India (through P. Navaneethakrishnan): 20 *shrimp*.
- Mailloux, Gerard: 1 *centipede*.
- Major, Mrs. Bernard P.: 2 *pottery vessels, Iran*.
- Malaya, University of, Malaysia: 61 *plant specimens (exchange)*; (through Dr. Benjamin Stone): 55 *plant specimens(exchanges)*; (through Thomas Yancey): 50 *crustaceans*.
- Malaysia, Government of: Office of Conservator of Forests (through Paul Chai): 10 *Araceae specimens*.
- Malone, Mrs. Elsie: 7 *mollusks*.
- Mamay, Dr. S. H. (see Interior, U. S. Department of the).
- Manchester, University of, Great Britain (through Dr. Joan Watson): 15 *fossil specimens (exchange)*. Manchester Museum (through Dr. Charles Pettitt): 42 *mollusks (exchange)*.
- Mancini, Eugene R.: 1 *mayfly*.
- Mandaville, James P., Jr.: 82 *plants, Oman*.
- Mangan, Robert: 150 *sepsid flies*.

Manning, Mrs. Anita: 36 *coleoptera*, *Pacific Islands* (see also Bernice P. Bishop Museum).

Marcus, Mrs. Eveline: *marine mollusk*, *Barbados*.

Marcus, Mr. and Mrs. Philip: *Eocene gastropod*.

Marcus, Philip: 2 *stilbite specimens*.

Marie Selby Botanical Gardens (through Dr. Calaway H. Dodson): 393 *botanical specimens*.

Marine Biological Association of the United Kingdom (through Dr. William A. Newman): 2 *crustaceans and 8 slides*, *southwest Atlantic*.

Marine Biological Consultants, Inc. (through Dennis C. Lees): 2 *medusae*.

Marine Biological Station, Yugoslavia (through Dr. Joze Stirn): 161 *crustaceans (exchange)*.

Marineland of Florida (through Dr. David K. Caldwell): 3 *marine mammals*.

Markham, John C. (see Miami, University of).

Marshall, Mrs. Elsie: 6 *marine shells*, *Chile*.

Marshall, John: 31 *mineral specimens*.

Maryland, State of: State Trout Hatchery (through Ed Enamait): *fish specimen*.

Maryland, University of (through Dr. John Davidson): 253 *beetles*.

Mason, Mrs. Janie Ellis: 4 *Apache baskets*.

Massachusetts, University of (through Barbara A. Clark): 100 *plant specimens (exchange)*; (through Dr. Albert C. Smith): 6 *plants*, *Fiji*.

Massey, J. R. (see North Carolina, University of).

Mather, Bryant: 85 *moths*, *Mississippi*; 27 *caddisflies*.

Mathis, Wayne N.: 7 *flies*.

Matternes, Jay H.: *orangutan skin*.

Mattos, Dr. J. (see Instituto de Botanica).

Mauney, Morris: 105 *flies*.

Mauritania, Government of: Ministere de l'Industrialisation et des Mines (through M. Henri Gruenwald): *meteorite specimen*.

Max-Planck Institut fur Limnologie (through Dr. E. J. Fittkau): 1 *isopod*, *Brazil*.

McAlpin, Dr. Bruce W.: 7 *ferns*, *Costa Rica*.

McBride, William R. (see Defense, U. S. Department of).

McCosker, Dr. John E. (see California, University of).

McCrosky, Dr. Richard E. (see National Aeronautics and Space Administration Fund).

McDaniel, Dr. Sidney: 73 *botanical specimens*.

McDonald, D. C.: 87 *prehistoric Australian lithic tools*.

McDonnell, Unity: *centipede*, *England*.

McGuinness, Albert L.: 30 *insect specimens*; 6 *minerals (exchanges)*.

McKeeson, Hon. John Alexander, III: *mask and figure*, *Gabon*.

McLachlan, Dr. Anton (see Port Elizabeth, University of).

McLaughlin, Dr. Patsy A. (see Miami, University of).

McLean, Dr. James H. (see Los Angeles County Museum of Natural History).

McLean, Dr. Robert S. (see Health, Education, and Welfare, U. S. Department of).

McPherson, J. E.: 2 *burrowing bugs*.

McVaugh, Dr. Rogers (see Michigan, University of).

Means, D. Bruce (see Florida State University).

Medici, Dr. John C.: 1 *chalcopyrite specimen*; 2 *mineral specimens (exchange)*.

Medler, Dr. John T.: 15 *stoneflies*, *Nigeria*.

Memorial University of Newfoundland, Canada: 20 *algae specimens (exchange)*.

Mendryk, Harold: 56 *crustaceans*, *Upper Cretaceous*.



Menez, Dr. Ernani G. (see Smithsonian Institution).  
 Menge, Jane Lubchenco: 30 *marine mollusks*.  
 Menke, Dr. A. S. (see Agriculture, U. S. Department of).  
 Mennega, Dr. E. A. (see Rijksuniversiteit te Utrecht).  
 Mertins, Dr. James W.: 5 *cicadas*.  
 Messersmith, Dr. D. H.: 521 *flies, Seychelles Islands*.  
 Metcalf, Artie L. (see Texas, University of).  
 Miami, University of: School of Marine and Atmospheric Sciences (through Dr. F. M. Bayer): 1,080 *crustaceans*; (through John C. Markham): 23 *crustaceans*; (through Dr. Patsy A. McLaughlin): 3 *crustaceans*; (through Dr. Patsy A. McLaughlin and Dr. A. J. Provenzano): 12 *crustaceans*; (through Dr. C. Richard Robins): 1 *fish specimen*; (through Dr. C. Richard Robins and Dr. Jon Staiger): 2 *fish specimens*.  
 Miami Sea Aquarium (through Dr. Carl Chapman): *pilot whale*.  
 Michigan State University (through Dr. John H. Beaman): 2 *botanical specimens, Mexico*.  
 Michigan, University of: Herbarium (through Mrs. Jennie V. A. Dieterle): 1 *Mechaerium, Mexico*; (through Dr. Rogers McVaugh): 1 *cultivated begonia*.  
 Museum of Comparative Zoology (through Dr. R. M. Bailey): 92 *fishes, Thailand (exchange)*; (through Dr. Robert R. Miller): 30 *fishes, Mexico*; 1 *scorpion, 61 crustaceans*.  
 Mikolajev, Dr. G. V. (see Institute of Plant Protection).  
 Miller, Dr. Charles N., Jr.: 27 *botanical thin section slides, Late Eocene*.  
 Miller, Dr. James R.: 3 *water beetles*.  
 Miller, John (see Smithsonian Institution).  
 Miller, Dr. John M. (see Hawaii, University of).  
 Miller, Dr. R. R. (see Universidad de Costa Rica).  
 Miller, Dr. Robert R. (see Michigan, University of).  
 Millson, Henry E.: 5 *mineral specimens*.  
 Milton, Dr. Daniel J. (see Interior, U. S. Department of the).  
 Mineralogisches Museum (through Dr. Gert Wappler): 11 *mineral specimens (exchange)*.  
 Mineralogisk-Geologiske Institut, Denmark (through Dr. Ole V. Petersen): 105 *mineral specimens (exchange)*.  
 Minette, Jim: *mineral specimen (exchange)*.  
 Minnesota, University of: James Ford Bell Museum of Natural History (through Lawrence R. Heaney): 71 *squirrels and 1 marten*.  
 Mironov, Konstantin: *ceruleite specimen, Bolivia*.  
 Mississippi State University (through Dr. Ronald Altig): 25 *crustaceans*.  
 Missouri, University of (through Dr. D. B. Dunn): 221 *plant specimens (exchange)*; (through Dr. Arthur Witt, Jr.): 1 *freshwater mollusk, Iowa*.  
 Missouri Botanical Garden (through Dr. Thomas B. Croat): 309 *botanical specimens*; 496 *plant photographs*, 350 *tropical plant specimens (exchanges)*; 58 *plant specimens, Panama and Costa Rica (gift-exchanges)*; (through Dr. Garrit Davidse): 6 *compositae, Panama*.  
 Mitchell, Robert W.: 34 *planarian slides, types, Mexico*.  
 Miyagi, Dr. Ichiro: 17 *canaceid flies, Asia*.  
 Moe, Dagfinn (see Botanisk Museum).  
 Molinari, Ovidio Garcia (see Puerto Rico, University of).  
 Montgomery, Dr. Arthur (see Lafayette College).  
 Moore, Donald R.: 8 *mollusks*.  
 Moore, Dr. Harold E., Jr. (see Cornell University).  
 Moore, Dr. Paul B.: 9 *mineral specimens, including types*.  
 Moore, Phil H.: 7 *plant specimens, Guam*.

Moosa, Kasim (see Lembaga Oceanologi Nasional).  
 Moras, Charles Michael: *Choco Indian wooden paddle, Panama*.  
 Morris, Byron (see Dalhousie University).  
 Morrow, Dr. James E. (see Alaska, University of).  
 Morse, John C.: *16 stoneflies*.  
 Morton, Dr. Eugene S.: *bird skin, Panama*.  
 Moskowitz, Dr. Paul (through Dr. Samuel Moskowitz): *crystal of chrome alum*.  
 Moskowitz, Dr. Samuel (see Moskowitz, Dr. Paul).  
 Moss Landing Marine Laboratories (through Dr. Peter N. Slattey): *537 ostracods; 10 Holothurians*.  
 Moya, Miguel Moya: *44 reptiles and amphibians, Spain (exchange)*.  
 Mrose, Mary: *mineral specimen* (see also Aleksandrov, Dr. S. M., and Interior, U. S. Department of the).  
 Muchmore, Dr. William B.: *862 centipedes and millipedes*.  
 Mumaw, Homer: *1 shrew*.  
 Muniziga, Juan: *clay-covered human skull fragment, Chile*.  
 Murayama, Dr. Sadao (see National Science Museum).  
 Murdock, Dr. Joseph (see California, University of).  
 Murphy, Dr. D. H.: *30 lace bugs, Asia*.  
 Museo Civico de Storia Naturale, Italy (through Dr. Canzoneri): *3 ephydrid flies (exchange)*.  
 Museo Nacional de Historia Natural, Uruguay (through Juan Cuello): *2 bird skins (exchange)*.  
 Museu Paraense Emilia Goeldi, Brazil (through Dr. Joao Murca Pires): *1 plant specimen*.  
 Museum d'Histoire Naturelle, Switzerland (through Dr. Ivan Lobl): *32 coleoptera*.  
 Museum National d'Histoire Naturelle, France (through Dr. J. Forest): *41 crustaceans; (through Jean Claude Jolinon): 2 Gramineae (exchange); (through Dr. Christian Jouanin): 2 birds (exchange); (through M. de Saint Laurent): 6 crustaceans; (through Dr. Alicia Lourteig): 38 plant specimens; 122 plant specimens (gift-exchange); 6 plant specimens (exchange); (through Dr. Paul Pellas): 1 meteorite thin section (exchange); (through Dr. Henri J. Schubnel): 1 priorite specimen (exchange)*.  
 Museum of Science, Boston (through Edward D. Pearce): *1 specimen chemically analyzed granite, South Africa*.  
 Nagarkatti, Dr. Sudha (see Commonwealth Institute for Biological Control).  
 Nakaike, T. (see National Science Museum).  
 Nakane, Dr. Takehiko: *5 scarab beetles, Bonin Islands*.  
 Natal Museum, South Africa (through R. N. Kilburn): *2 mollusks, types*.  
 National Aeronautics and Space Administration Fund, Smithsonian Institution (through Dr. Richard E. McCrosky): *complete meteorite, 286 grams; (through M. O. Oyawoya): meteorite specimen; (through K. M. Russell): 3 glass specimens*.  
 National Geographic Society (through Robert Sisson): *3 crustaceans, Indian Ocean*.  
 National Museum of Natural Sciences, Canada (through Dr. R. R. Ireland): *420 bryophyte specimens (exchange)*.  
 National Science Museum, Japan: *50 woody plants (exchange); (through Dr. Tadashige Habe): 2 mollusks; (through Hiroshige Koyama): 50 compositae; (through Dr. Sadao Murayama): meteorite polished thin section; (through T. Nakaike): 50 ferns (exchange)*.  
 Natur-Museum und Forschungs Institut Senckenberg (through Dr. R. zur Strassen): *9 thrips, Canary Islands (exchange)*.

Navaneethakrishnan, P. (see Madurai University).

Negre, Jacques: 2 *ground beetles* (exchange).

Nelson, Dr. Gayle H.: 13 *wood-boring beetles* (gift-exchange).

Nelson, H. G. (see Field Museum of Natural History).

Neuerburg, Dr. George J. (see Interior, U.S. Department of the).

Nevada, State of: Department of Agriculture (through Dr. Robert C. Bechtel): 1 *walkingstick* (exchange).

Nevling, Dr. Lorin I., Jr. (see Field Museum of Natural History).

Newell, Dr. Norman D.: 5,000 *marine invertebrates, Tunisia*.

Newell, Robert L.: 19 *stoneflies*.

New England Aquarium (through John H. Prescott): 13 *marine mammals*.

Newman, John H.: 7 *moths*.

Newman, Dr. Marshall T. (see Ferguson, Mrs. A. L. L.).

Newman, Dr. William A. (see Marine Biological Association of the United Kingdom).

Newman, Dr. William A. (see California, University of).

New Mexico, University of (through Dr. Klaus Keil): *meteorite specimen* (exchange).

New York Botanical Garden (through Dr. Patricia K. Holmgren): 146 *botanical specimens*; 310 *botanical specimens* (gift-exchanges); 1,539 *botanical specimens* (exchanges).

New York Ocean Science Laboratory (through Dr. Colin M. Finney): 14 *copepods*.

New Zealand, Government of: Geological Survey (through Dr. A. G. Beu): 49 *land snails*. Department of Scientific and Industrial Research (through E. W. Valentine): 1 *sawfly* (exchange).

Nichols State University (through James G. Ragan): 6 *fish specimens*.

Nickel, Dr. Ernest H.: *mineral specimen, Australia*.

Nickel, Dr. P. A.: *mite slide*.

Nicolay, Col. S. S.: 4 *butterflies, South America*.

Nielsen, Dr. Jorgen (see Copenhagen, University of).

Nielsen, Mogens C.: 9 *moths and butterflies*.

Nikitsky, Dr. N. (see Academia Nauk of USSR).

Noble, Chief Dennis L. (see Transportation, U. S. Department of).

Nohel, Dr. Peter: 4 *beetles*.

Norford, Dr. B. S. (see Canada, Government of).

North Carolina, State of: Museum of Natural History (through Dr. Roland M. Shelley): 2 *mollusks*, 33 *crayfish*, 5 *shrimp*.

North Carolina, University of (through J. R. Massey): 150 *botanical specimens* (gift-exchange); (through Cathy Salmons): 11 *crustaceans*. Institute of Fisheries Research (through James K. Dooley): 4 *fishes, types*; (through Dr. Austin B. Williams): 5 *crustaceans*.

Northeast Louisiana University (through Dr. Neil H. Douglas): 49 *fishes, including types*.

Northeast Missouri State University (through Dr. Melvin L. Conrad): 3 *botanical specimens, Mexico*.

Northern Illinois University (through Dr. David W. Greenfield): *fish specimen, British Honduras*.

Nowacki, Dr. W.: *mineral specimen, Switzerland* (exchange).

Nussbaum, Ronald A.: 31 *salamanders*.

Nutting, W. H.: 155 *beetles*.

Oak Ridge National Laboratories (through Dr. T. F. Connolly): 6 *crystal specimens*.

Ober, Dr. Lewis D.: 53 *frogs, Haiti*.



O'Brien, Dr. Charles W.: 377 *weevils*; 4 *weevils (exchange)*.  
 O'Brien, Dr. Lois B.: 52 *cockroaches, South America*.  
 Occidental College (through Michael K. Oliver): 4 *fishes, types, Africa*.  
 O'Clair, Charles E. (see Washington, University of).  
 Odell, Rev. Mark: 183 *crayfish*.  
 O'Dunne, Mrs. Eugene: 17 *carat sapphire in diamond mounting*.  
 Ohashi, Hiroyoshi (see Tokyo, University of).  
 Ohio State University: Herbarium: 141 *plant specimens (exchange)*; (through Marvin L. Roberts): 15 *plant specimens*. Museum of Zoology (through Dr. David H. Stansbery): 2 *freshwater mollusks*.  
 Oklahoma City Zoo (through Charles G. Wilson): *fish specimen*.  
 Old, Dr. William E., Jr. (see American Museum of Natural History).  
 Old Dominion College (through Dr. John R. Holsinger): 354 *crustaceans*.  
 Oldeman, Dr. R. A. A. (see France, Government of).  
 Oliver, Michael K. (see Occidental College).  
 Olson, Dr. Storrs: 2 *rodent specimens*.  
 Olsson, Dr. Axel A.: 2 *marine mollusks*.  
 Oman, Dr. Paul (see Oregon State University).  
 Ontiveros, Manuel: 3 *private specimens, Mexico*.  
 Opler, Dr. Paul A. (see Organization for Tropical Studies, Inc.).  
 Oregon State University (through Peter A. Bisson): 20 *fishes*; (through Dr. Carl E. Bond): 5 *fishes, types*; (through Dr. Kenton L. Chambers): 1 *botanical specimen*; (through Dr. Daniel M. Cohen and David Stein): 3 *fishes*; (through Edward R. Long): 69 *crustaceans*; (through Dr. Paul Oman): 4 *beetles*.  
 Organization for Tropical Studies, Inc. (through Dr. Paul Opler): 35 *botanical specimens*.  
 Otobed, Demei O. (see Pacific Islands, Trust Territory of the).  
 Owen, Robert P.: *bird skin, Caroline Islands*.  
 Owre, Dr. Harding B.: *worm specimen, type, Gulf of Mexico*.  
 Oyawoya, M. O. (see National Aeronautics and Space Administration Fund).  
 Pabst, Dr. G. F. J. (see Herbarium Bradeanum).  
 Pacific Bio-Marine Supply Co. (through Dr. Rimmon Fay): 1 *stomatopod specimen*.  
 Pacific Islands, Trust Territory of (through Demei O. Otobed): 19 *crustaceans*.  
 Page, Larry M. (see Illinois Natural History Survey).  
 Pala Properties International (through William Larsen): 9 *mineral specimens*.  
 Palmer, Robert E.: 5 *polychaete worms (exchange)*.  
 Palmer, Dr. William M.: *bog turtle, corn snake*.  
 Palomar College (through Dr. Dennis L. Bostic): 14 *worms, 2 mollusks*.  
 Panczner, William: *natrolite specimen, New Zealand*.  
 Paperna, Dr. Ilan (see Virginia Institute of Marine Science).  
 Papua and New Guinea, Territory of: Department of Forests: 644 *plant specimens (exchange)*; 364 *plant specimens*.  
 Park, Dr. Taisoo (see Texas A&M University).  
 Parker, Frances L.: 91 *fossil foraminifera*.  
 Parmelee, Dr. David F.: 28 *bird skins and 8 skeletons, Antarctic*.  
 Parsons, Dr. Carl T.: 2 *beetles, Brazil (exchange)*.  
 Patterson, Dr. Bryan (see Harvard University).  
 Patterson, Mrs. Jefferson: 5 *ethnological specimens, West Africa; pottery head, Uganda*.  
 Patton, Mr. and Mrs. Harry J.: *rug of Egyptian Bedouin tent cloth*.  
 Paul, Dr. Allen Z. (see Florida State University).  
 Paulson, Dr. Dennis: 7 *dragonflies*.

Peacor, Donald R.: *vial metavivianite, 2 kellyite specimens*.  
 Pearce, Edward D. (see Museum of Science).  
 Peck, Dr. Raymond E.: *190 Cretaceous microcrinoids*.  
 Peck, Dr. Stewart B. (see Carleton University).  
 Peigler, Richard: *400 moths*.  
 Pellas, Dr. Paul (see Museum National d'Histoire Naturelle).  
 Pennsylvania, State of: Department of Agriculture (through Dr. A. G. Wheeler): *6 plant bugs*.  
 Pequegnat, Dr. Willis E.: *120 echnioderm specimens, Gulf of Mexico* (see also Texas A&M University).  
 Perrault, Dr. G. G.: *ground beetle, type*.  
 Peters, Dr. William L.: *382 Neuropteroids* (see also Edmunds, Dr. George F., Jr.).  
 Petersen, Dr. Ole V. (see Mineralogisk-Geologiske Institut).  
 Peterson, Mrs. L. W. (see Smithsonian Institution).  
 Peterson, Norman: *745 mammal specimens, Colombia*.  
 Petit, Richard E.: *1 mollusk specimen*.  
 Pettitt, Dr. Charles (see Manchester, University of).  
 Peyton, E. L. (see Defense, U.S. Department of).  
 Pflug, Linda: *2 marine mollusks, Venezuela*.  
 Philips Forschungslaboratorium Aachen GmbH (through G. R. Schodder): *crystal specimens*.  
 Pieritz, Douglas: *fossil whale skull*.  
 Pieters, Sid: *1 jeremejevite specimen (exchange); 1 cuprite with malachite specimen; 1 lot cuprite*.  
 Pignataro, John: *12 mineral specimens*.  
 Pinch, William: *westerveldite specimen, Spain*.  
 Pinkava, Dr. D. J. (see Arizona State University).  
 Pires, Dr. Joao Murca (see Museu Paraense Emilia Goeldi).  
 Pittsburgh, University of (through Dr. Fred Tsuji): *547 crustacean and plankton specimens*.  
 Plant Protection Research Institute, South Africa (through Giovanni DeLotto): *9 insect slides*.  
 Plowman, Dr. Timothy: *569 specimens, South America*.  
 Plumbago Mining Co.: *pegmatite pocket material*.  
 Pohl, Dr. Richard W. (see Iowa State University).  
 Pojeta, Dr. John (see Interior, U.S. Department of the).  
 Pokorny, Dr. Vladimir: *88 ostracod slides*.  
 Polhemus, Dr. John T.: *1 water strider, 5 true bugs*.  
 Pond, Dr. Robert B., Jr. (see Windsor Metalcrystals, Inc.).  
 Pope, Mrs. E. C.: *12 echinoderms, Australia*.  
 Pope, Dr. R. D.: *ground beetle, South America (exchange)*.  
 Port Elizabeth, University of, South Africa (through Dr. Anton McLachlan): *9 crustaceans*.  
 Porte, Dr. Anthony R. D.: *1 fossil specimen, Jamaica*.  
 Portugal, Government of: Centro de Botanica (through Dr. A. Fernandes): *12 grass specimens*.  
 Post, Dr. R. L.: *8 ladybug beetles*.  
 Post, Dr. Richard L.: *33 beetles*.  
 Potter, Dr. Gilbert D. (see California, University of).  
 Pough, Fred: *2 silicon carbide specimens*.  
 Povolny, Dr. D.: *3 small moths, Central America*.  
 Prescott, John H. (see New England Aquarium).  
 Price, Richard: *2 butterflies*.  
 Priesner, Dr. H.: *3 wasps, Europe (exchange)*.

Princeton University (through Michael Berrill): 29 *crustaceans*.  
 Provenzano, Dr. A. J. (see Miami, University of).  
 Pryce, Dr. M. W.: *mineral specimen, Australia*.  
 Puerto Rico, University of (through Dr. Paul R. Burkholder): 7 *sponges*;  
 (through Dr. J. Maldonado Capriles): 49 *Lepidoptera and Diptera*, 574  
*Hemiptera and Hymenoptera*, 22 *Neuropteroids*, 224 *Coleoptera* (gift-  
*exchange*); (through Ronald J. Larsen): 18 *crayfish*; (through Ovidio Garcia  
 Molinari): 27 *botanical specimens*.  
 Pugh, Lawrence (see Defense, U.S. Department of).  
 Putnam, Barry: *slab containing pelecypods, Jurassic*.  
 Quarin, Camilo Luis (see Universidad Nacional del Nordeste).  
 Queen's University, Canada (through Dr. J. Douglas Scott): 2 *mineral  
 specimens (exchange)*.  
 Radwin, Dr. George E. (see San Diego Society of Natural History).  
 Rae, Scott: 2 *snakes*.  
 Ragan, Dr. James G.: 15 *polychaetes* (see also Nichols State University).  
 Rainey, William E. (see Island Resources Foundation, Inc.).  
 Ramsey, Dr. John S. (see Auburn University).  
 Randall, Dr. John E.: 40 *mollusk specimens*.  
 Rasweiler, Dr. John, J., IV (see Columbia University).  
 Read, Luana: 2 *marine mollusks, Bahama Islands*.  
 Reddell, James R.: 48 *crustaceans*; 19 *Hemiptera and Hymenoptera* (see also  
 Texas Tech University).  
 Reeder, Dr. Charlotte G. (see Wyoming, University of).  
 Reeder, Dr. Steven S. (see Universidad de Costa Rica).  
 Reichardt, Dr. Hans (see Universidade de Sao Paulo).  
 Relyea, Dr. Kenneth (see Jacksonville University).  
 Rice, Dr. Anthony L. (see Great Britain, Government of).  
 Richards, Dr. R. Peter: 5 *cornulitids*.  
 Richmond, Mrs. Leana: 1,388 *beetles*.  
 Riddle, W. C.: 3 *bivalves, Cretaceous*.  
 Riggs, Mrs. Augustus, IV: 2 *plains Indian buckskin dresses*.  
 Rijksherbarium, Netherlands: 773 *plant specimens (exchange)*.  
 Rijkmuseum van Natuurlijke Historie, Netherlands (through Dr. C. O. van  
 Regteren Altena): 2 *marine mollusks*; (through Dr. Boesman and Dr. B. B.  
 Collette): 4 *fishes*; (through Dr. D. C. Geijskes): 37 *stoneflies (exchange)*;  
 (through Dr. W. Vervoort): 84 *copepods*.  
 Rijksuniversiteit te Utrecht, Netherlands: Botanisch Museum en Herbarium:  
 60 *botanical specimens (gift-exchanges)*; 24 *plant specimens (exchange)*;  
 (through Dr. E. A. Mennega): 30 *plant specimens (gift-exchange)*.  
 Zoologisch Laboratorium (through Dr. H. A. ten Hove): 15 *polychaetes*.  
 Riley, Vane: *chambersite specimen*.  
 Rimoli, Renato O.: 20 *shrimp*; 2 *fishes*.  
 Ripley, Dr. S. Dillon: 60 *water bugs*; 3 *mammals, Bhutan*.  
 Roberts, Dr. H. Radclyffe (see Academy of Natural Sciences of Philadelphia).  
 Roberts, Marvin L. (see Ohio State University).  
 Roberts, Raymond: *carved stone charm, New Hebrides*.  
 Robins, Dr. C. Richard (see Miami, University of).  
 Robinson, Colleen J. (see Australia, Government of).  
 Robinson, Dr. Eric (see University College London).  
 Robinson, George: 13 *mineral specimens*.  
 Robinson, Dr. Henry W. (see Southern State College).  
 Rodgers, David: 6 *mollusk specimens*.  
 Rodman, Duane (see American Samoa, Government of).  
 Rodriguez-Carrasquero, Dr. Henry A. (see Universidad de los Andes).



Roe, Dr. Arthur: 1 *chabazite specimen*; 1 lot *cobaltite*.  
 Roe, Dr. Richard B. (see Commerce, U.S. Department of).  
 Roebling Fund, Smithsonian Institution: 49 *mineral specimens*.  
 Rogers, Dr. Ken (see Southern Mississippi, University of).  
 Rollins, Dr. Reed C. (see Harvard University).  
 Rose, William (see Hawaii, State of).  
 Rosenberg, Rutger: 24 *polychaete worms*.  
 Ross, Dr. Reuben J., Jr. (see Interior, U.S. Department of the).  
 Rossetto, Dr. Carlos Jorge: 37 *lace bugs*.  
 Rothstein, Joseph: 17 *mineral specimens*.  
 Rowe, Dr. Gilbert T. (see Duke University and Texas A&M University).  
 Rowell, Dr. A. J.: 15 *brachiopods and 17 slides, Cambrian and Ordovician*.  
 Rozkosny, Dr. R. (see J. E. Purkyne University).  
 Ruder Boskovic Institute, Yugoslavia (through Dr. Zdravko Stevcic): 403 *crustaceans*.  
 Ruhoff, Theodore B.: 1 *worm*, 27 *mollusks*.  
 Rush-Presbyterian St. Luke's Medical Center (through Dr. Frederick Dienhardt and Dr. Lauren G. Wolfe): 27 *mammal specimens*.  
 Rushin, Carol Jo: 30 *Neuropteroids, British Honduras*.  
 Russell, K. M. (see National Aeronautics and Space Administration Fund).  
 Ryan, Dr. J. D. (see Lehigh University).  
 Rygg, Darwin: *mineral specimen*.  
 Rzedowski, Dr. J. (see Instituto Politecnio Nacional).  
 Saena R., Rodrigo: 3 *plagioclase feldspar specimens, Costa Rica*.  
 Sahagian, Dr. Charles S. (see Defense, U.S. Department of).  
 Sahlin, Carl F.: *Araucanian Indian silver necklace, Chile*.  
 Sailer, Dr. Reece I. (see Agriculture, U.S. Department of).  
 St. Lucia, W.I., Government of: Research and Control Department (through Guy Barnish): 20 *crustaceans*.  
 Saint Mary's University, Canada (through Ursula M. Grigg): 1 *ostracod specimen*.  
 Sakimura, K.: 3 *thrips*.  
 Salmons, Cathy (see North Carolina, University of).  
 Saloman, Carl H. (see Commerce, U.S. Department of).  
 Samuel, Mr. and Mrs. Craig R.: 6 *fossil invertebrates, Devonian*.  
 Samuelson, G. A. (see Bernice P. Bishop Museum).  
 Sanderson, Dr. Milton: 3 *beetles*.  
 San Diego Society of Natural History (through Dr. George E. Radwin): *mollusk specimen, type*.  
 Sanson, Andrew (see Wiewandt, Thomas A.).  
 Santa Barbara Botanic Garden: 68 *plant specimens (exchange)*.  
 Santos, Stuart L.: 234 *polychaete worms*.  
 Saritas, Mustafa U. (see Ege University).  
 Saul, John: 2 *lots mineral specimens*.  
 Saul, Dr. Louella (through Dr. E. G. Kauffman): 23 *Cretaceous bivalves (exchange)*.  
 Saunders, Harold (see Interior, U.S. Department of the).  
 Sawyer, Allan: 13 *land and marine shells, Peru*.  
 Sawyer, Dr. Roy T.: 213 *worms, 66 leeches and many cocoons, 2 crustaceans*.  
 Saxon, Dr. James G. (see Erskine College).  
 Scalisi, I. Phillip: *mooreite specimen*.  
 Schindler, John (see Defense, U.S. Department of).  
 Schlepp, Gene: 2 *mineral specimens, Mexico (exchange)*.  
 Schlichter, Ernest: 68 *mineral specimens*.  
 Schmidt, Terry E.: *meteorite specimen (exchange)*.

Schneider, Dr. Curt R.: 122 *Lepidoptera and Diptera*, 12 *Neuropteroids*, 3 *Hemiptera and Hymenoptera*, Thailand.

Schodder, G. R. (see Philips Forschungslaboratorium Aachen GmbH).

Schoen, Ivan L.: 16 *specimens of clothing and weapons*, Surinam.

Schubnel, Dr. Henri J. (see Museum National d'Histoire Naturelle).

Schuh, Joe: 19 *beetles*.

Schultes, Dr. Richard Evans (see Harvard University).

Schuster, Dr. R. M.: 17 *wasps*.

Schuster, Dr. R. O.: 8 *beetles* (see also California, University of).

Scott, Dr. J. Douglas (see Queen's University).

Sedman, Dr. Yale S.: 107 *caddisflies*.

Seeligmann, Dr. Peter (see Argentina, Government of).

Segeler, Curt G.: *wermlandite specimen*, Sweden.

Segura Paguaga, Dr. Alfonso: 5 *mineral specimens*.

Sessom, Dr. Stanley L. (see Southwest Texas State University).

Setzer, Henry W.: *striped skunk*.

Sevrens, Palmer: *uralolite specimen*.

Sexauer, Howard T.: 7 *mollusk specimens*.

Seymour, Dr. Charles (see Cornell University).

Shaffner, Mrs. Marie L.: 2 *ashtrays*, Samoa; *carved wood bookend*, Haiti.

Sharp, Dr. William N. (see Interior, U.S. Department of the).

Sheen, Michael (through Arthur L. Dahl): 1 *lobster*, Puerto Rico.

Sheldon, R. P. (see Interior, U.S. Department of the).

Shelley, Dr. Roland M. (see North Carolina, State of).

Shrum, Louis: *prehnite specimen*.

Shulenberg, Dr. Eric (see California, University of).

Sieker, William E.: 28 *hawk moths* (exchange).

Sikkim, Government of (see the Chogyal and Gyalmo of Sikkim).

Simmons, Robert S. (see Harris, Herbert S., Jr.).

Singapore, Government of: 107 *plant specimens*, Malaysia (exchange).

Sisi, Dr. J. C. (see Ecole Polytechnique).

Sisson, Robert (see National Geographic Society).

Skog, Laurence E.: 144 *plant specimens*.

Slaterry, Dr. Peter N. (see Moss Landing Marine Laboratories).

Small, Gordon B., Jr.: 1 *butterfly*, type.

Smith, Dr. Albert C. (see Massachusetts, University of).

Smith, David (through Dr. Gerald H. Johnson): 2 *fossil beavers*, Pleistocene.

Smith, Dr. David R.: 69 *sawflies*, India.

Smith, Dr. Dean K.: *genthelvite specimen*, type (exchange).

Smith, Dr. DeBoyd L. (see West Coast Plankton Studies).

Smith, F. L. (see Ludlow, Smith, and Cann, Inc.).

Smith, H. Morgan: *spear and 4 basketry specimens*, Panama; *bow, arrows, and quiver*, Philippine Islands.

Smith, Joe B.: *chryscolla specimen*.

Smithsonian Institution (see the following Funds: Bacon, Canfield, Casey, Chamberlain, National Aeronautics and Space Administration, Roebling, Springer, and Walcott): Collected for the Museum: 99 *worms*, Margarita Islands, Venezuela, Dr. Meredith L. Jones; 10 *echinoderms*, Central Pacific, Pacific Ocean Biological Survey Program; 54 *lots worms*, 6 *marine mollusks*, 34 *crustaceans*, 50 *echinoderms*, RV Alimos cruise; 113 *crustaceans*, Canada; 39 *dried reptile skeletons*; 2 *echinoderms*, 4 *crustaceans*, 1 *lot worms*, Israel; 129 *sipunculids*, Yugoslavia; 1,809 *crustaceans*, 46 *Coleoptera*; 9 *lice slides*, Liberia; 12 *crustaceans*, 10 *worms*, Argentina, O. L. Flint, Jr., and G. F. Hevel; 6 *fishes*, Tunisia; 49 *reptiles and amphibians*, Egypt; 13 *crustaceans*, Thailand; 13 *bird skins*, 37 *bird skeletons*, Western Beaufort



*Sea Ecological Cruise Survey*; 21 crustaceans, Senegal; 88 crustaceans, Bermuda; 6 crustaceans, 19 mollusks, Indonesia; 654 fossil mammals, Oligocene, Wyoming; 50 echinoderms, Western Australia Museum; 7 plant specimens, Colombia; 7 mollusk shells, Alabama; 2 crustaceans, Mexico; 2 samples lithium clay, North Carolina; 3 xenoliths, Arizona; 16 worms, 545 crustaceans, 300 mollusks, Yugoslavia and Tunisia; 99 ostracods, Tertiary and Recent; 2,243 plant specimens, Brazil, Dr. Gert Hatschbach; 8,000 silicified brachiopods, Thailand, R. E. Grant and F. G. Stehli; 1,933 plant specimens, Costa Rica, D. B. Lellinger and J. J. White; 26 bird skins, 29 skeletons, 3 nests, 2 eggs, Brazil; 24 crustaceans, 265 mollusks, 11 worms, 27 echinoderms, Turkey; 4 mollusks; 360 mineral specimens, Alaska; 25 freshwater mollusks, New York; 34 marine mollusks; 29 mollusks, Caroline Islands; 1 marine mollusk, 1 echinoderm, 427 crustaceans, Yugoslavia; 1,540 mollusks, 20 crustaceans; 16 mineral specimens, Iceland; 2 mineral specimens, Mexico; 35 bats, 4 rodents; 7 begonias, Ceylon, A. H. M. Jayasuriya; 4,232 crustaceans, RVs Vema, Atlantis II, and Anton Bruun; 2 taaffeite specimens, Australia; 1 lot augite crystals, Mt. Etna volcanic complex, Dr. R. F. Fudali; 6 echinoderms, Morocco; 100 corals, mollusks, and burrow structures, Crustaceous, Texas; 1 natrojarosite specimen, Australia; 330 crustaceans, Caspian Sea; 1,900 mollusks, American Samoa and Cook Islands; 26 foraminifera, North Atlantic; meteorite specimen, Australia; 8 potsherds, Brazil; 14 potsherds, Argentina; 700 Oligocene and 6 Pliocene fossil vertebrates, Nebraska and Wyoming, Robert J. Emry; 80 plant specimens, U.S.; 77 centipedes and millipedes, New York; 450 archeological specimens, Nicaragua; 18 Cretaceous corals; painted altar slab, Arizona and 5 etched birchbark plaques, Maine, Dr. Jesse Walter Fewkes; 362 Neuropteroids, 69 Coleoptera, Ohio; 10,493 Lepidoptera and Diptera, 1,651 Coleoptera, 936 neuropteroids, 536 Hemiptera and Hymenoptera, 343 Myriapoda and Arachnida, Dominican Republic and Jamaica; 2,347 neuropteroids, Sri Lanka; collection of archeological objects, Florida; 147 craft objects, Bhutan; 69 ethnological specimens, Angola; 4 felsic volcanic rock specimens, Wyoming; 85 bat flies, Venezuela; 6 oolitic limestone specimens, Australia; 15 neuropteroids, Yugoslavia. Ft. Pierce Bureau (through Dr. Robert M. Gore): 106 crustaceans, Panama. Found in the Collections: 5 Near Eastern rugs; 195 mineral specimens; 1 peacock coal specimen. Mediterranean Marine Sorting Center: (through Mohamed Lajmi): 6 crustaceans; (through Dr. Ernani G. Menez): 785 crustaceans, Morocco. National Zoological Park: dwarf lemur, prairie dog; 25 bird skins and skeletons. Oceanographic Sorting Center: 4,781 Nematoda, Antarctica; 431 sipunculids; 3,824 echinoderms; 2 echinoderms, 2 lots nemertean worms; 335 marine and land mollusks; British Honduras; 60 lots polychaetes; (through Dr. Richard S. Houbbrick): 10 crustaceans; (through Dr. Richard S. Houbbrick and Henry A. Jones): 40 marine mollusks; (through Henry A. Jones): 1,746 crustaceans; (through Dr. Leslie W. Knapp): 32 crustaceans, Thailand; (through Betty J. Landrum): 220 marine mollusks; (through Dr. Ernani G. Menez): 32 crustaceans, Philippines; (through John Miller): 6 ostracods; (through Mrs. L. W. Peterson): 5,859 crustaceans. Purchased: 28 plant specimens; 227 Tibetan ethnological items; 140 Motilone Indian specimens, Venezuela; sculptured pottery owl. Renwick Gallery: glazed ceramic water jar, Nigeria. Tropical Research Institute (through Dr. Charles Birkeland): 17 crustaceans, Panama; (through Dr. Peter W. Glynn): 77 crustaceans, Panama; 200 crustaceans; (through James P. Stames): 102 crustaceans, Panama; (through Dr. Henk Wolda): 7 plants, Colombia. Sohn, Dr. I. G. (see Interior, U.S. Department of the). Solomon, Mrs. Hermine K. (see Solomon, Mr. and Mrs. Richard A.).



Solomon, Mr. and Mrs. Richard A.: *1 Pima Indian jar, in memory of Mrs. Hermine K. Solomon.*

South Australian Museum (through Dr. G. E. Gross): *1 Reduviidae (exchange); (through Dr. D. C. Lee): 28 mite slides, including types.*

South Carolina, University of (through Dr. Bruce B. Coull): *28 copepods.*

South Florida, University of (through Ernest D. Estevez): *23 isopods; (through Dr. Olga Lakela): 1 Xanthosoma; (through Dr. J. Lawrence): 1 Cirripecta; (through Robert W. Long): 1 Pectis.*

Southeastern State College (through Dr. John Taylor): *210 plant specimens, Mexico and Costa Rica (exchange).*

Southern California, University of: Allan Hancock Foundation (through Dr. John S. Garth): *1 crustacean, type, Peru.*

Southern Illinois University (through Dr. Jamie E. Thomerson): *4 fishes, types, Venezuela.*

Southern Mississippi, University of (through Dr. Ken Rogers): *93 grass specimens.*

Southern State College (through Dr. Henry W. Robinson): *25 fish specimens.*

Southwest Texas State University (through Dr. Stanley L. Sessom): *74 crustaceans.*

Spangler, Dr. Paul J.: *262 crustaceans, 9,928 beetles.*

Spaulding Fibre Co., Inc.: Mycalex Division (through E. C. Worden): *synthetic mica specimen.*

Spertini, Francesco: *20 mineral specimens (exchange).*

Springer Fund, Smithsonian Institution: *slab containing specimens of a Middle Cambrian crinoid.*

Sprinkle, Dr. James (see Interior, U.S. Department of the).

Staiger, Dr. Jon (see Miami, University of).

Stames, James P. (see Smithsonian Institution).

Stanford University (through Dr. J. Dearborn): *11 echinoderms, Antarctica.*

Stansbery, Dr. David H.: *6 freshwater mollusks (see also Ohio State University).*

Stark, William P.: *39 Hemiptera and Hymenoptera, 46 Coleoptera, 844 Trichoptera; 21 stoneflies; 83 caddisflies.*

State, U.S. Department of: *silver urn, Cambodia; dagger and sheath, Saudi Arabia; (through Dr. Kyle R. Barbehenn): 673 mammal specimens.*

Station de Recherches de Zoologie, Guadeloupe (through Dr. Ch. Leveque): *60 crustaceans, West Indies.*

Stearns, Dr. Richard E. (see Stearns, Mrs. Richard E.).

Stearns, Mrs. Richard E.: *600 stone and pottery artifacts, in memory of Dr. Richard E. Stearns.*

Steffan, Dr. Wallace B. (see Bernice P. Bishop Museum).

Stein, David (see Oregon State University).

Stein, Jack: *4 beetles.*

Steinhouser, Dr. S. R.: *6 plant specimens, El Salvador.*

Stephens, J. D.: *15 mineral specimens.*

Stephens, Dr. John, Jr.: *fish specimen, Chile.*

Stevcic, Dr. Zdravko (see Ruder Boskovic Institute).

Stewart, Dr. Kenneth W.: *23 stoneflies.*

Steyermark, Dr. Julian (see Venezuela, Government of).

Steyskal, George C.: *707 marsh flies.*

Stirn, Dr. Jose (see Marine Biological Station).

Stock, Dr. Jan H. (see Caribbean Marine Biological Institute).

Stockton, William L.: *9 marine mollusks, Antarctica.*

Stone, Dr. Benjamin C. (see Malaya, University of).

Stone, Dr. Margaret H. (see Cornell University).

- Stough, Mrs. Betty Boardman: *5 bird skins*.  
 Strenth, Ned E. (see Texas A&M University).  
 Strohecker, Dr. H. F.: *2 walkingsticks*.  
 Strother, Dr. John L. (see California, University of).  
 Struhaaker, Dr. Paul (see Commerce, U.S. Department of).  
 Sutherland, Lin (see Australia, Government of).  
 Swaebe, Richard (see Diamond Sales Co.).  
 Swaziland, Government of: Geological Survey and Mines Department  
 (through J. G. Urie): *meteorite specimens*.  
 Swerdloff, Dr. Stanley (see American Samoa, Government of).  
 Sze, Mrs. Marina Y.: *Chinese dragon robe*.  
 Taiwan Fisheries Research Institute (through Wen-young Tseng): *219*  
*crustaceans*.  
 Tarter, Dr. Donald C.: *5 stoneflies*.  
 Taxson, Albert: *1,128 marine mollusks*.  
 Taylor, Dr. John (see Southeastern State College).  
 Taylor, Dr. John L.: *8 worm specimens*.  
 ten Hove, Dr. H. A. (see Rijksuniversiteit te Utrecht).  
 Tennessee, University of (through Dr. David A. Etnier and Dr. James D.  
 Williams): *7 fish specimens, types*.  
 Teran, Dr. Luis Ruiz (see Universidad de los Andes).  
 Terborgh, Dr. John W. (see Weske, Dr. John S.).  
 Texas, University of: Austin Campus (through Dr. Thomas W. Broadhead):  
*1 fossil specimen*; (through Dr. Marshall C. Johnston): *62 botanical*  
*specimens*; (through Peter Keller): *8 mineral specimens (exchange)*. Dallas  
 Campus: *1 botanical specimen*. El Paso Campus (through Artie L. Metcalf):  
*5 mollusks*.  
 Texas A&M University (through Dr. Douglas W. Albaugh): *2,115 crayfish, 10*  
*fish*; (through Dr. Willis E. Pequegnat): *102 crustaceans*; (through  
 Dr. Gilbert T. Rowe): *54 lots worms, 1 isopod*; (through Ned E. Strength):  
*9 crustaceans*; (through Grady E. Williams III): *9 annelids*. Moody College  
 of Marine Sciences and Maritime Resources (through Dr. Taisoo Park):  
*1 copepod*.  
 Texas Tech University (through William R. Elliott): *4 crustaceans*; (through  
 James R. Reddell): *39 crustaceans, Mexico*.  
 T.F.H. Publications, Inc. (through Dr. Herbert R. Axelrod): *fish specimen, Brazil*.  
 Thomas, Dr. Maurice (see Tulane University).  
 Thomerson, Dr. Jamie E. (see Southern Illinois University).  
 Thompson, Dr. Peter R.: *6 foraminifera, Pleistocene*.  
 Thongtham, Suwannawat: *Marine mollusk, Thailand*.  
 Thorington, Dr. Richard W.: *4 anole lizards; 58 rodent skeletal material;*  
*32 primates*.  
 Threlkeld, Stephen T.: *26 copepods*.  
 Tiemann, Darwin: *10 beetles*.  
 Tillett, Dr. Stephen S. (see Venezuela, Government of).  
 Titeux, M. Roger: *fluorite, France*.  
 Tkac, Martin A., Jr.: *161 flies*.  
 Todd, Dr. E. L.: *1,434 moths*.  
 Todd, Dr. Neil B. (see Faunalabs, Inc.).  
 Togashi, Dr. Ichiji: *8 sawflies, types, Japan*.  
 Tokyo, University of, Japan (through Hiroyoshi Ohashi): *147 botanical*  
*specimens (exchanges)*.  
 Tones, Mrs. Pat: *48 beetles, Canada*.  
 Toronto, University of, Canada (through Dr. John Gittins): *agrellite specimen,*  
*type*.

Transportation, U.S. Department of: U.S. Coast Guard (through Chief  
 Dennis L. Noble): *8 skeletons and 1 skin, Arctic birds.*  
 Traub, Dr. Robert: *66 fleas, including types.*  
 Treasury, U.S. Department of the: Bureau of Customs: *2 Chinese scrolls; 15  
 Chinese lacquered chests, wood screens, and gemstone trees.*  
 Trego, Kent: *echinoderm.*  
 Tressler, Christopher: *Recent attached foraminifera.*  
 Trjapitzin, Dr. V. A. (see Academy of Sciences of the USSR).  
 Tropical Science Center, Costa Rica (through Dr. Leslie R. Holdridge):  
*botanical specimen.*  
 Trott, Dr. Lamarr B.: *77 lots fish, Hong Kong.*  
 Troy, Jack: *2 mineral specimens, Canada.*  
 Truebe, Henry (see Alpine Corp.).  
 Tseng, Wen-young (see Taiwan Fisheries Research Institute).  
 Tsuji, Dr. Fred (see Pittsburgh, University of).  
 Tucker, John M. (see California, University of).  
 Tulane University (through Dr. Maurice E. Thomas): *3 bats; (through  
 Dr. Emily M. Vokes): 7 mollusks.*  
 Tunnell, John W.: *15 worms, Mexico.*  
 Tuskegee Institute (through Dr. James D. Williams): *25 crayfish; 35 fishes,  
 including types.*  
 Tyler, Dr. James (see Academy of Natural Sciences of Philadelphia).  
 Tyson, William H.: *5 caddisflies.*  
 Unger, Leonard: *2 tektites, 8 quartz geodes, Thailand.*  
 Universalist National Memorial Church: *embroidered shoe, China.*  
 Universidad Austral de Chile (through Ramon Formas C.): *7 frogs, including  
 types (exchange).*  
 Universidad Central de Venezuela (through Carmen E. B. de Rojas): *83 plant  
 specimens.*  
 Universidad de Buenos Aires (through Elisa N. de Panza): *362 botanical  
 specimens, Argentina (exchanges).*  
 Universidad de Concepcion, Chile (through Ruth Desqueyroux): *2 boring  
 sponges.*  
 Universidad de Costa Rica (through Dr. William A. Bussing): *80 fishes, types;  
 (through Dr. William A. Bussing and Dr. R. R. Miller): 20 fishes; (through  
 Gary S. Hartshorn): 17 plants; (through Dr. Steven S. Reeder): 4  
 crustaceans; (through Dr. Carlos R. Villalobos): 3 marine mollusks.*  
 Universidad de Los Andes, Venezuela (through Dr. Henry A. Rodriguez-  
 Carrasquero): *2 begonias; (through Dr. Manuel Lopez Figueiras): 1  
 phanerogam; (through Dr. Louis Ruiz Teran): 32 begonias.*  
 Universidad Nacional Autonoma de Mexico (through Dr. Alejandro  
 Villalobos F.): *81 crayfish.*  
 Universidad Nacional de Colombia (through Dr. Plutarco Cala and Dr. B. B.  
 Collette): *2 fish, types.*  
 Universidad Nacional de Cordoba, Argentina (through Armando T. Hunziker):  
*47 botanical specimens (exchange).*  
 Universidad Nacional del Nordeste, Argentina (through Antonio Krapovickas):  
*35 plant specimens; through Camilo Luis Quarin): 2 Gramineae, South  
 America.*  
 Universidad Nacional Mayor de San Marcos, Peru (through Dr. Ramon  
 Ferreyra): *132 plant specimens*  
 Universidade de Brasilia, Brazil (through Dr. George Eiten): *14 Gramineae  
 specimens.*  
 Universidade de Sao Paulo, Brazil (through Tagea K. S. Bjornberg): *1  
 crustacean. Museu de Zoologia (through Dr. Hans Reichardt): 5 beetles  
 (exchange).*



- Universidade Federal de Rio Grande do Sul, Brazil (through Dr. J. Valls): 66 *grass specimens*.
- Universidade Federal de Santa Catarina, Brazil (through Ranulpho de Souza Sob.): 62 *plant specimens*.
- Universitat Kiel (through Dr. Gerhard F. Lutze): 53 *foraminifera, Persian Gulf*.
- Universitat zu Berlin (through Dr. G. Wappler): 5 *mineral specimens (exchange)*.
- Universite de Saigon, South Vietnam (through Pham-hoang Ho): 15 *bamboo specimens*.
- Universiteit van Amsterdam, Netherlands (through Dr. R. W. M. van Soest): 9 *echinoderm specimens, types*.
- Universitetets Zoologiske Museum, Denmark (through Dr. Torben Wolff): 25 *crustaceans (exchanges)*.
- Universiti Sains Malaysia (through Dr. Lai Hoi Chaw): 37 *copepods, Malaysia*.
- University College London (through Dr. Eric Robinson): 2 *crustacean slides*.
- Uribe, Padre L. Uribe (see Instituto de Ciencias Naturales).
- Urie, J. G. (see Swaziland, Government of).
- Ustan, Ed: 1 *vial and 1 box synthetic beryl crystals*.
- Uttal, Dr. Leonard J. (see Virginia Polytechnic Institute and State University).
- Vail, J. R. (see Khartoum, University of).
- Valencia, Dr. Luis: 4 *Tachinid flies, Peru*.
- Valentine, E. W. (see New Zealand, Government of).
- Valenza, Mr. and Mrs. Angelo D. (see Gaeth, Mr. and Mrs. Douglas E.).
- Valls, Dr. J. (see Universidade Federal de Rio Grande do Sul).
- Vanderbilt University: Herbarium (through Dr. Robert Kral): 476 *plant specimens (exchange)*.
- Van Der Vecht, Dr. J.: 65 *Hymenoptera (exchange)*.
- Vangeison, Keith W.: 1 *assassin bug*.
- Van Reenen, Dr. J. A.: 14 *lace bugs, South Africa*.
- Van Soest, Dr. R. W. M. (see Universiteit van Amsterdam).
- Vassilczenko, Dr. I. T. (see Komarov Botanical Institute of the USSR).
- Velasco, Jorge: 5 *sand flies, Bolivia*.
- Venable, George L.: 68 *micro Lepidoptera*.
- Venezuela, Government of: Ministerio de Agricultura y Cria: Instituto Botanica: 17 *botanical specimens*; 35 *plants (gift-exchange)*; 362 *plant specimens (gift-exchanges)*; (through Dr. Stephen S. Tillett): 99 *plant specimens*. Ministerio de Minas y Hidrocarburos (through Dr. Pedro J. Bermudez): 2 *lizards*.
- Vervoort, Dr. W. (see Rijksmuseum van Natuurlijke Historie).
- Victoria University of Wellington, New Zealand (through Dr. Anthony A. Fincham): 18 *crustaceans*.
- Villa, Jaime: 5 *snakes, Nicaragua*.
- Villalobos, Dr. Carlos R. (see Universidad de Costa Rica).
- Villalobos F., Dr. Alejandro (see Universidad Nacional Autonoma de Mexico).
- Vince, Louis: 5 *antlerite specimens*.
- Virgin Islands Ecological Research Station, St. John (through W. N. Brownell): 2 *crustaceans*.
- Virginia, Commonwealth of: Paleontological Survey (through R. F. Correia): 1 *bryozoan specimen*. State Library (through Col. Howard A. MacCord): 62 *lots human burial remains, 672 artifacts, 2 skeletons*; (through Col. Howard A. MacCord and Arthur F. Johnson): 13 *human burial remains*.
- Virginia Institute of Marine Science (through Dr. Donald F. Boesch): 33 *isopods, Australia*; (through Dr. Ilan Paperna): 1 *fish, East Africa, 100 worms*.

Virginia Polytechnic Institute and State University (through Tom Brandt): 10 *crayfish*; (through Dr. Leonard J. Uttal): 24 *plants, Alaska*.  
 Vokes, Dr. Emily H. (see Tulane University).  
 Wagoner, Harry: *geode, Mexico*.  
 Walcott Fund, Smithsonian Institution: 9,000 *invertebrate fossil specimens*.  
 Walker, William A.: 9 *marine mammals*.  
 Wallace, Dr. George: 3 *unique-headed bugs* (see also Carnegie Museum).  
 Waller, Dr. Thomas R.: *mollusk specimen*.  
 Wallmark, Dr. John A.: 93 *mites, including types*.  
 Walls, Jerry G.: 7 *cebrionid beetles*.  
 Walter, E. V. (see Bruce-Terminix Co.).  
 Walton, Col. Frank E.: *Chinese opium smoking outfit*.  
 Wappler, Dr. Gert (see Mineralogisches Museum and Universitat zu Berlin).  
 Ward, Dr. David B. (see Florida, University of).  
 Waren, Dr. Anders (see Gothenburg, University of).  
 Warner, William W. (see Lee, Lester).  
 Wasbauer, Dr. Marius S.: 2 *Leiomyrmosa spilota, types*.  
 Washington, University of (through Kenneth K. Chew): 1,000 *crustaceans, Alaska*; (through Dr. Robert L. Fernald): 10 *medusae*; (through Mrs. Jolly H. Galt): 18 *crustaceans*; (through Dr. Dora P. Henry): 3 *crustaceans*; (through Gayle Heron): 2,000 *copepods*; (through Dr. Paul Illg): 1 *crayfish*; (through Ulf Lie): 8 *copepods*; (through Charles E. O'Clair): 4 *echinoderms, Aleutian Islands*; 20 *starfish, Amchitka*.  
 Watkins, Marjorie (see Duke University).  
 Watling, Dr. Les (see Delaware, University of).  
 Watson, Dr. Joan (see Manchester, University of).  
 Wauer, Roland H. (see Interior, U.S. Department of the).  
 Weber, Dr. William A. (see Colorado, University of).  
 Weibezahn, Franz H.: 519 *caddisflies, Venezuela*.  
 Welsh, Dr. Stanley (see Brigham Young University).  
 Wentz, Mrs. James E.: *basketry hat, Philippine Islands*.  
 Werneke, Dr. Robert M. (see Arthur Rylan Institute for Environmental Research).  
 Werner, Dr. Floyd G.: 13 *scarab beetles*.  
 Weske, Dr. John S., and Terborgh, Dr. John W.: 111 *bird skeletons*.  
 West Coast Plankton Studies (through Dr. DeBoyd L. Smith): 100 *medusae*.  
 Westcott, Richard L.: 3 *beetles*.  
 Western Airlines (through Henry M. deButts): *Chilkat Indian totem pole, Alaska*.  
 Western Australian Museum (through Dr. L. E. Koch): 5 *crustaceans (exchange)*; (through Dr. Barry R. Wilson): 1 *mollusk (exchange)*.  
 Westinghouse Corp.: Hanford Engineering Development Laboratory (through H. J. Anderson): 1 lot *uraninite crystals*.  
 Wharton, Dr. Charles H. (see Georgia State University).  
 Wheeler, Dr. A. G. (see Pennsylvania, State of).  
 White, Larry: 2 *quartz specimens*.  
 Whitehead, Dr. Donald: 12 *rove beetles, Central America*.  
 Whitmore, Dr. Frank C.: 16 *marine mollusks, Mexico*.  
 Wible, Marion: 2 *spears, Burma*.  
 Widener, Millard E.: 37 *fossil specimens, Devonian*.  
 Wielgus, Ronald S.: 40 *Lepidoptera larva*; 65 *Lepidoptera and Diptera*, 38 *Coleoptera*.  
 Wiewandt, Thomas A.: 2 *crustaceans, Puerto Rico*.  
 Wiggins, Dr. G. B. (see Canada, Government of).  
 Wight, Quintin: 2 *mineral specimens, Canada*.

- Wilber, David P.: *10 minerals (gift-exchange); 1 zincite specimen (exchange)*.
- Wilcox, Mrs. Dorothy Webb (see Wilcox, Howard).
- Wilcox, Howard, Clark, Elizabeth C., and Hooff, Laura: *9 native costumes, Philippine Islands, in memory of Mrs. Dorothy Webb Wilcox*.
- Wilkey, Richard F.: *1 Coccoidea slide*.
- Williams, Dr. Austin B. (see Commerce, U.S. Department of, and North Carolina, University of).
- Williams, Dr. Douglas J. (see Commonwealth Institute of Entomology).
- Williams, Dr. James D. (see Tennessee, University of, and Tuskegee Institute).
- Williams, Mrs. Maxcine: *21 plant specimens, Alaska*.
- Williams, Prosper J.: *2 mineral specimens (exchange)*.
- Williams, Dr. Sidney A.: *heyite specimen, type*.
- Williams, Dr. T. Walley: *4 marine mollusks*.
- Wilson, Dr. Barry R. (see Western Australian Museum).
- Wilson, Charles G. (see Oklahoma City Zoo).
- Wilson, Dr. Donald E. (see Interior, U.S. Department of the).
- Windsor Metalcrystals, Inc. (through Dr. Robert B. Pond, Jr.): *single aluminum sphere*.
- Wing, Eugene: *140 stone, bone, and pottery artifacts*.
- Wirth, Dr. W. W. (see Agriculture, U.S. Department of).
- Wisconsin, University of (through Theodore S. Cochran): *3 compositae; (through Dr. Bruce F. Hansen): 19 Bromeliaceae; (through Dr. Hugh H. Iltis): 183 botanical specimens; 53 plants (exchange); (through Charles A. Long): 1 lot flatworms*.
- Wisconsin State University (through Dr. Gerald Z. Jacobi): *3 crayfish*.
- Witherington, Philip: *19 crustaceans*.
- Witt, Dr. Arthur, Jr. (see Missouri, University of).
- Wolbarsht, Dr. Myron L. (see Duke University).
- Wolda, Dr. Henk (see Smithsonian Institution).
- Wolfe, Dr. Lauren G. (see Rush-Presbyterian St. Luke's Medical Center).
- Wolff, Dr. Torben (see Universitetets Zoologiske Museum).
- Wood, Roy D.: *jonesite specimen*.
- Wood, Dr. Stephen L.: *4 Coleoptera*.
- Woodring, Dr. J. P.: *23 mite slides, Central America*.
- Woodruff, Dr. Robert E.: *31 beetles*.
- Woods Hole Oceanographic Institution (through Dr. David C. Judkins): *130 crustaceans; (through Dr. Thomas J. Lawson): 9 crustaceans*.
- Woolford, Thomas A. (see Bellport Senior High School).
- Worden, E. C. (see Spaulding Fibre Co., Inc.).
- Wormersley, Dr. H. B. S. (see Adelaide, University of).
- Worth, Tony: *topaz, Mexico (exchange)*.
- Wright, Dr. Howard O. (see Grand Valley State College).
- Wyman, Donald G.: *1 lot almandine*.
- Wyoming, University of: Rocky Mountain Herbarium (through Dr. Charlotte G. Reeder): *2 Gramineae specimens, Mexico*.
- Yale University: Peabody Museum of Natural History (through Dr. Willard D. Hartman): *9 sponges, types, West Indies*.
- Yancey, Thomas (see Malaya, University of).
- Yang, Julie C. (see Johns-Manville Corp.).
- Yedlin, Neal: *1 lot and 4 mineral specimens*.
- Yepez, Dr. F. Fernandez: *13 neotropical Coleoptera*.
- Yochelson, Ellis L. (see Interior, U.S. Department of the).
- Young, Dr. Allen M. (see Laurence University).
- Young, Dr. Frank N.: *479 water beetles*.
- Young, Jack R. (see Lyko Mineral and Gem, Inc.).





## HISTORY AND ART

### COOPER-HEWITT MUSEUM OF DECORATIVE ARTS AND DESIGN

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collection inherited from her  
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### *Donors to the Library*

- Bader, Franz: Tung, Ch'i-ch'ang. *Tung Wen-ming Ch'iu-hsing pa-ching*. Shanghai, 1924. Wu, Hsiu-an. *Chin-tai ming-jen mo-miao*. Shanghai, 1924.
- Welles, Jane: Yun Shou-p'ing. *Yun nan-tien shan-shui-t'se*. Wu-hsi. Wen-hua. 1924. *Ku-chien-ko chiao-pei t'u*, vol. 1.
- Tamarin, Alfred: Photographs of Chinese art in Japanese collections.

### *Donors to the Study Collection*

- Chase, W. Thomas, III: Persian manuscript page; calligraphy; Shiraz, ca. 1575.
- Chennault, Anna: Chinese painting; Ming dynasty, A.D. 1368–1644; landscape; signature of Lan Ying 1585–ca. 1664; style of Chao Ling-jang. Hanging scroll.
- Gilliland, McCoy: Japanese blue and white dish; Meiji period, A.D. 1868–.
- Grigaut, Hubert: Chinese painting (on bone); Chou dynasty, 1028–256 B.C.
- Chinese bronze mirror; Sung dynasty, A.D. 960–1280.



Kevorkian Foundation: Persian miniatures (10 pp.); late 14th-early 15th century. Persian illuminations and calligraphy (2 pp.); late 15th century. Indian drawing; Mughal, 17th century. Egyptian/Iraqi parchment fragment; 9th century.

Lee, Sherman: Chinese bronze; *T'ing*; reproduction of a Chou dynasty object; animal-shaped.

Plumer, Carol: Chinese pottery; Chien ware; Sung dynasty, A.D. 960-1280. Republic of China, Embassy of: Film, "National Palace Museum."

Somerville, Ann: Chinese painting; Ch'ing dynasty, A.D. 1644-1912; peonies and dragon fly. Chinese painting; Ch'ing dynasty, A.D. 1644-1912; execution scene.

Tesone, S. L.: Etching by Charles A. Platt, Seascape. (Architect of the Freer Gallery of Art.)

## NATIONAL MUSEUM OF HISTORY AND TECHNOLOGY

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### *Donors to the Collections*

Abbot, Dr. and Mrs. Charles G.: *church bass and bow, 1828.*

Abilities Incorporated (through Don Dreyer): *bud vase with etching.*

Acheson, Mrs. Dean (see Sanford, Mrs. Wayland).

Adams, Ann: *photograph of donor drawing by mouth and sketch.*

Adams, Larry: *6 Iowa checks.*

Alexander, Donald C. (see Treasury, U.S. Department of the).

Alfano, Louis: *13 narcotic stamps, 3 Custom fee stamps.*

Alinder, James: *3 silver print photographs*

Allen, Thomas B.: *90 anti-Vietnam War movement objects*.  
 Altman, Mrs. Belle Rudin and Maybelle (see Rudin, Eli H. and Miriam).  
 Altman, Renee: *admission ticket; plate, 20th century*.  
 Altman, Mr. and Mrs. Seymour: *2 luncheon plates, cup and saucer*.  
 American Bosch: Marketing Division (through Wallace C. Baker): *diesel injection pump*.  
 American Foundation for the Blind (through Robert Barnett): *12 samples of aids for blind people*.  
 American Safety Razor Company: *6 razors, shaving kit cover*.  
 American Society of Mechanical Engineers (see Clarke, Charles M.).  
 American Topical Association (through Mr. and Mrs. Jerry Husak): *2 First Day covers*.  
 Anderson, Mrs. Will: *pair pillow cases and sheet, early 19th century*.  
 Andrews, Harris: *1922 Poll Tax certificate, cover page of sheet music; Ku Klux Klan pamphlet; 1936 election guide*.  
 Anonymous: *11 political matchbooks; folding chair; 277 large die proofs for stamps; 29 woven fragments*.  
 Architect of the Capitol (through Mrs. Florian H. Thayn): *photograph of President Franklin D. Roosevelt, book Report of the Case Brig. General Armstrong, 1857*.  
 Arnhold, Henry: *Meissen service, ca. 1740*.  
 Arnhold, Henry; Hawes, Dr. Lloyd E.; and Syz, Dr. Hans: *1 Meissen plate, ca. 1725 (see also Smithsonian Institution)*.  
 Ayres, Waldemar A.: *Ayres "Artificial Gill" Mark I & II*.  
 Baker, Wallace C. (see American Bosch).  
 Banov, Leon: *slave identification tag*.  
 Barber, Julia M.: *melodeon and stool, ca. 1860*.  
 Barenholtz, George J. (see Howmedica, Inc.).  
 Barnett, Robert (see American Foundation for the Blind).  
 Bartleson, John D., Jr.: *2 Civil War projectiles*.  
 Bartlett, Frederick W., II: *collection of 31 lithographs*.  
 Baruch, Mrs. Charles Maurice (see Cadwalader, Robert D.).  
 Basal, Leonard A.: *stitchery kit of Spiro T. Agnew*.  
 Baster, Mrs. (see Defense, U.S. Department of).  
 Bazelon, Bruce: *3 shoulder insignia, WW II*.  
 Beacon, Adaline: *Book Monuments of Washington's Patriotism, page from account book, 1812*.  
 Beatus, Ronald D.: *political button*.  
 Bechtel, Mr. and Mrs. Arthur W.: *shawl, 19th century*.  
 Beck, Dorothy Bateman, Estate of (through Edward J. Corcoran): *6 horseback riding items; 1 sextant; 75 firearms and accessories and edged weapons; small wooden cannon and carriage (bequest)*.  
 Becker, Ralph E.: *422 political campaign objects*.  
 Behlen, Eugene: *broadside of Black Panther Party*.  
 Belcher, Hon. Taylor G.: *40 pieces of Portobello Ware, ca. 1800, in memory of Miriam Frazee Belcher*.  
 Belgium, Government of, Academie Royale des Sciences de Lettres et des Beaux-Art (through Jacques Lavalleye): *silver commemorative medal*.  
 Belinky, Mrs. Michael R.: *man's sweater, ca. 1929*.  
 Benedict, Larry: *140 orange and grapefruit labels*.  
 Bennett, Barbara: *Meissen plate, ca. 1850-1900*.  
 Bennett, Mrs. Wilda P.: *4 lady's caps, 2 ribbons, sampler*.  
 Benzinger, Mr. and Mrs. Hugo (see Strach, Marion Babette).  
 Berkebile, Don H.: *6 historical transportation items; miner's hammer*.  
 Bernstein, Herbert: *3 souvenir covers; 3 First Day covers*.  
 Bewley, E. J.: *post-office lockbox*.

Bhutan Stamp Agency, Ltd.: 6 mint postage stamps.  
 Bigbee, Dan E.: 12 wooden eggs.  
 Bierman, Mrs. William: 37 lantern slides, 5 16mm films.  
 Birchmore, Fred A.: *Dayton bicycle*, 1939.  
 Birkhill, Frederick R., Jr.: *daguerreotype*.  
 Birnbaum, Mrs. H. B.: 2 copies of booklet of moving pictures.  
 Bissell, Mrs. George P., Jr.: 23 pieces of English earthenware.  
 Black, Margaret Hodson: *postcard carried by first authorized airmail service and return cover*, 1911.  
 Blair, Anne Denton (see Conger, Mrs. Frederic).  
 Blaisdell, Earl: 2 bronze pieces.  
 Blake, Mrs. Elizabeth: *commemorative towel*.  
 Bland, John A.: *collection of printing equipment and furniture from old printing shop; picnic hamper*.  
 Bloom, Mr. and Mrs. Frederick: *vase*.  
 Blume, Mr. and Mrs. E. J.: 2 steel helmets, 1 liner.  
 Blystone, Clara: 18 items regarding the temperance movement.  
 Boaz, Mrs. Frances F.: *doll*, 1870.  
 Bohart, Mr. and Mrs. James Philip: 4 items of woman's wear, in memory of Josephine Dubs Bohart.  
 Bolduc, Hector L.: 2 U.S. covers.  
 Bolte, Mrs. Vernon A. (through Warren Danzanbaker): *mourning band, novelty booklet, ca. 1840, silk band*.  
 Born, Dr. Harold (see Illinois State University).  
 Bose Corporation (through Don Gehly): 2 speakers with pedestals.  
 Bourgeois, Mr. and Mrs. Joseph W. E.: *watch*, 1852, in memory of O. B. Marsh Roxbury.  
 Bourland, Charles E.: 4 woven pictures.  
 Bowers, Olen E.: *quilt, prize ribbon*, 1907.  
 Bradley, Frederick (through S. Dillon Ripley): *Inaugural license plates and official program*, 1933.  
 Bradley, Hon. Thomas (through Michael J. Pohl): 19 political campaign items.  
 Brandt, Mrs. Amos, and Sons (through John C. Schroeter and Francis B. Huber): *steam traction engine*, 1924.  
 Brock, Mrs. Pearletta (through Mrs. Herbert Foley): *land grant*, 1856.  
 Brooks, Phil: *book The Art of Diplomacy*.  
 Brooks, Philip C.: 2 specimens relating to funeral of President Harry S. Truman; *white linen damask tablecloth*.  
 Brown, Edgar (see Newell, Mr. and Mrs. Sterling).  
 Brown, Mr. and Mrs. Gerald: *copper weathervane*.  
 Brown, Monnie: 2 coverlets, *quilt*.  
 Brown, Pearl G.: 2 preserve jars.  
 Bugbee, Mrs. Joan: 326 surgical instruments, 567 books and pamphlets, 18 diplomas and awards, 12 pictures and oil paintings, 9 items of furniture.  
 Bullova-Moore, Catherine (see International Association of Professional Numismatists).  
 Burnnell, John F. (see Chrysler Corporation).  
 Burnside, Mr. and Mrs. Thomas (see Daguerreian Era).  
 Burundi, Government of: Agency Philatelique: 4 *First Day covers*, commercial cover, 31 mint postage stamps; *First Day cover*, 6 mint postage stamps.  
 Cadwalader, Max J. (see Cadwalader, Robert D.).  
 Cadwalader, Robert D.; Cadwalader, Max J.; and Baruch, Mrs. Charles Maurice: *vacuum cleaner*.  
 Callanan, William F.: *first flight cover*.  
 Calloway, Mrs. Mary: *miner's pick, lamp, and cap*, in memory of Ira Calloway.



Cancie, Mr. and Mrs. Leopoldo: 7 *bonds*.  
 Cannon, Dr. Walter F.: *eye-glass lens*.  
 Carlisle Colonial Minute Men (through Robert R. Heath): 2 *silver medals*.  
 Carter, Allen E.: 3 *silver print photographs*.  
 Carter, Mrs. Maude Faulkner (see Hunter, Mrs. Myrtle Faulkner).  
 Caterpillar Tractor Co. (through Jerry Cook): *diesel engine, 1930*.  
 Celanese Plastics Co.: 127 *early celluloid artifacts*.  
 Chandler, Capt. William D.: *drawing by Raemaekers, WW I*.  
 Chappelle, Howard I.: *booklet "A Calendar of the Papers of Josiah Fox."*  
 Chapman, Mrs. Grosvenor: 20 *textile specimens*.  
 Chapplelear, James: 20 *postcards*.  
 Chenette, Edmond: *electric toaster*.  
 Chenette, Mr. and Mrs. Louis: *clock, ca. 1825-30*.  
 Cheney, John T.: *calculator*.  
 Chermayeff and Geismar Associates (through John Grady): *scythe*.  
 Cherry, Hon. Gwendolyn (through Lucille Place): *wooden gavel used in presiding at First National Woman's Political Caucus Convention; related information and photographs of Convention*.  
 Chiavassa, H. (see Monaco, Government of).  
 China, Government of the Republic of (through S. P. Wang): 24 *mint postage stamps; 1 mint souvenir sheet, 35 mint postage stamps*.  
 Chisholm, Hon. Shirley: 13 *political campaign specimens*.  
 Chokel, Bogomir: *mourning badge, convention badge, pin, mouse pelt*.  
 Chrysler Corporation (through John F. Bunnell): *gas engine*.  
 Clain-Stefanelli, Mrs. Elvira: 30 *ancient coins*.  
 Clain-Stefanelli, Dr. Vladimir: 6 *National Rifle Association medals; 63 ancient coins; 10 commemorative medals*.  
 Clancey, Mrs. W. P.: 13-*star flag*.  
 Clark, Fred J.: *Internal Revenue appointment certificate and promissory note, handwritten regulations of U.S.S. Washington, 1816*.  
 Clarke, Charles M. (through American Society of Mechanical Engineers): *typewriter*.  
 Clawson, Hon. Del: *commemorative plate*.  
 Clevenger, Mrs. Alice: *baby's spoon, hunting and fishing license*.  
 Coe, Mr. and Mrs. Arthur P.: 73 *pieces of "slag" glass, late 19th century*.  
 Coffee, Barbara J.: *"Election Day in Kentucky" postcard, 1913; political campaign paper napkin, 1936*.  
 Cohen, Ethel M.: 2 *specimens of Indian cotton*.  
 Collier County Semicentennial Commission, Inc. (through R. H. Rockhold): 2 *sets of 5 commemorative medals*.  
 Collins, Herbert R.: 72 *political history specimens*.  
 Colombia, Government of (through Beatriz Pantoja de Gil): 6 *First Day covers*.  
 Columbia Broadcasting System, Inc.: *News Film Library (through Neil Waldman and Jack Kuney): documentary film "How Women Got the Vote."*  
 Commerce, U.S. Department of: 9 *physical science specimens*.  
 Conger, Clement (see White House).  
 Conger, Mrs. Frederic (through Dr. Richard H. Howland and Anne Denton Blair): *lady's cap, early 19th century*.  
 Conger, Paul S.: 20 *camera and lens specimens; 2 textile specimens, in memory of William J. Whiting (see also Whiting, William J., Estate of)*.  
 Conlon, James (see Treasury, U.S. Department of the).  
 Cook, Jerry (see Caterpillar Tractor Co.).  
 Cook Islands, Government of: *Ministry of Posts: 5 First Day covers, 13 mint souvenir sheets, 49 mint postage stamps*.  
 Corcoran, Edward J. (see Beck, Dorothy Bateman, Estate of).

Cottrell, Mrs. Joseph F.: *woman's dress, 1916.*  
 Coulter, Gen. John B.: *program for unveiling of donor's statue, 1959.*  
 Craig, Mrs. Louis A.: *19th century sampler; 4 pewter specimens.*  
 Craig, Gen. and Mrs. Louis A.: *2 ponchos, blanket, runner.*  
 Craig, Vera B. (see Interior, U.S. Department of the.)  
 Crane, Mrs. Alan H.: *20 lithographs.*  
 Crays, Mrs. Marian S.: *woven coverlet, child's petticoat.*  
 Crosby, Mrs. Paula: *woman's cape.*  
 Cullum, Carole: *12 political history items.*  
 Cunningham, Mrs. James H.: *wedding dress, 1885.*  
 Cunningham, Peter F.; Williams, Mrs. Murat; and Cunningham, Michael:  
     *Cunningham touring car, 1929.*  
 Cupp, Mrs. Donald E.: *knitting sampler.*  
 Curtis, Col. James W.: *silver medal.*  
 Daguerreian Era (through Mr. and Mrs. Thomas Burnside): *albumen print of*  
     *Smithsonian Institution, late 19th century.*  
 Damm, Mrs. George R.: *2 service records, 3 photographs.*  
 The Danbury Mint: *2 mounted medals.*  
 Danzenbaker, Warren (see Bolte, Mrs. Vernon A.).  
 Davis, Dr. Sidney L.: *mourning letter and 2 franked envelopes, 1901,*  
     *mourning calling card.*  
 DeBaun, Sylvia: *4 political history items.*  
 Defense, U.S. Department of, Department of the Army, Institute of Heraldry:  
     *41 insignia and Presidential Citizens medal.* Department of the Navy,  
     Research Laboratory (through Mrs. Baster): *IBM keyboard punch.*  
 de Gil, Beatriz Pantoja (see Colombia, Government of).  
 Democratic National Committee: *52 political campaign items.*  
 Denmark, Government of, Ministry of Public Works (through T. W. Madsen):  
     *50 mint postage stamps.*  
 Dickinson Mrs. Eleanor: *95 cultural history specimens.*  
 Diety, Mrs. John S. (see Griffiths, Mrs. David W.).  
 Dillon, Wilton S.: *1 mint postage stamp, 33 commemorative covers, Poland;*  
     *bronze commemorative medal, Poland.*  
 Donahue, F. Joseph: *22 piece Inauguration news kit.*  
 Dorman, Charles: *print depicting Bowling Green.*  
 Dougherty, Mrs. Charles E.: *6 cooking implement specimens.*  
 Dougherty, Gladys: *earthenware plate.*  
 Downes, Mrs. Eileen Armstrong: *girl's coat and leggings.*  
 Doyle, Mr. and Mrs. Kevin: *postage stamp, Germany.*  
 Draper, James Christopher (see Draper, John William Christopher).  
 Draper, John William Christopher, and James Christopher: *46 astronomic*  
     *and photographic specimens, 23 graphic art specimens, 11 medical science*  
     *specimens.*  
 Dreyer, Don (see Abilities Incorporated).  
 Duff, Mrs. Ramsay: *linen damask napkin, 19th century.*  
 Dulski, Hon. Thaddeus J.: *2 Copernicus First Day covers.*  
 Dumville, Mrs. Irma Gordon: *reed organ.*  
 Duncan, Mrs. Candy (see Washington Area Convention and Visitors Bureau).  
 Dunham, Dr. Richard Brown: *spinning wheel, ca. 1840-1900.*  
 Dunn, Mr. and Mrs. Arthur Wallace, Jr.: *silver ash tray, 6 pieces silver*  
     *flatware, silver salver; glass vase.*  
 Durant, Frederick C., III (see Smithsonian Institution).  
 Edwards, Carolyn H., Estate of (through National Savings and Trust Co. and  
     University of Maine): *4 firearms, holster, bolo knife with scabbard, 2*  
     *compasses, sextant, cross staff head, surveyor's chain and pouch, telescope*  
     *(bequest).*

Egan, Peggy (see Petersilia, Patricia).

Eickemeyer Fund, Florence Brevoort, Smithsonian Institution: 72 tintypes, 5 ambrotypes, 3 daguerreotypes; 16 albumen prints; wood engraving; wood block print, 1861; 3 post cards; 1 platinum print; 2 album-size photographs.

Einhorn, Nathan R. (see Library of Congress).

Elliott, Mr. and Mrs. Charles: *clothes wringer*, 1898.

Emden, Donald W.: 2 commemorative stamps on covers.

Engelbach, Mr. and Mrs. Miles V.: 273 stamps, covers, and postal specimens.

Evans, Dr. Clifford, and Meggers, Dr. Betty: 12 First Day covers, 22 mint and used postage stamps.

Farenthold, Frances Tarlton: 17 political campaign items.

Faulkner, Mrs. Dorothy: *woman's shoe and buckle*, 18th century.

Fetherston, Edith H., Estate of (through John F. Zeller III): 6 chairs, 2 trays, table, 2 candleholders, lamp, string holder, 2 coal boxes (bequest).

Flachier, George A.: 133 postage stamps, Ecuador.

Fledderjohann, Mrs. Fred: *wooden link chain*.

Flory, Paul: 50 millstones.

Floyd, Thomas L.: 12 commemorative medals.

Foley, Mrs. Erma: *leather traveling case owned by Mrs. William H. Taft, water pitcher with Presidential Seal*.

Foley, Mrs. Herbert (see Brock, Mrs. Pearletta).

Folk Art Fund, Smithsonian Institution: 6 engraved copper plates; wood carving of owl; 31 photographs of revival scenes; book *The New Years Gift*; 17 documents.

Ford, John J., Jr.: *steel die for assay ingots*, 1838; 13 gold, 2 silver mint issue medals; *aluminum trial of portrait of President John F. Kennedy*.

Fort Concho Museum: *original payroll of Philadelphia*.

Franklin Mint: 4 silver medals, *Shakespeare series*; 2 silver medals, *Michaelangelo series*.

Freeman, Harriet L.: *newspaper; silk badge*.

Freeman, Michael A.: *photograph of President Harding's funeral, commemorative plaque of President Johnson's Korean visit*.

Friedland, Dr. Fritz: *pair of wooden crutches*.

Friends of Music at the Smithsonian Fund, Smithsonian Institution: *orchestral horn by Raoux with case and 11 crooks*.

Frye, Melinia Y.: *poster and information on Woman's Day at Berkeley*.

Fuld, George (see Steinberg, Gilbert).

Furman, Martin William: *bracelet, ca. 1924-25*.

Galbraith, Letitia (see National Trust for Historic Preservation).

Gallagher, Mrs. J. Roswell: *bedspread fragment, 1800-88, towel, 1830*.

Gardner-Miller Fund, Smithsonian Institution: *figure of a shepherdess, ca. 1750*.

Gaskin, James C. (see Veterans Administration).

Gast, Carolyn: *vest pocket Kodak special camera, in memory of Grace Fields and Samuel Colcord Bartlett*.

Gehlbach, Vernon P.: *print of observatory of Illinois Watch Co*.

Gehly, Don (see Bose Corporation).

Gelles, Daniel E.: 5 engineering specimens.

General Services Administration: 2 pairs arctic combat boots.

Gengerke, Martin T., Jr.: 8 counterfeit currency study materials.

Geoghegan, William E.: 3 ship model plans, book, photo album.

George, Dr. Demitri J.: *homemade, lower extremity prosthesis*.

Gerhardt, Mrs. Michael (see Jacobs, Mr. and Mrs. Ernest).

Gillette Co.: *wooden plaque with Gillette Trac II razor and pack of cartridges*.

Gilliland, Thomas: 4 coin and paper currency specimens, Mali.



Gilmore, Mrs. William: *printed floor cloth, ingrain carpet sample*.  
 Gilpin, Mrs. Vincent: *61 wooden canes*.  
 Gilpin, Mr. William H.: *western style saddle, ca. 1900*.  
 Glaser, Walter N.: *pension certificate and leather gauntlets*.  
 Glynn, Mrs. Mary Joan: *woman's dress, 1972*.  
 Golovin Fund, Anne, Smithsonian Institution: *2 split-seat chairs*.  
 Golovin, Anne C.: *side chair; teakettle*.  
 Gonzalez, Jose I.: *2 edged weapons with scabbards*.  
 Gordon, Robert (see Rice Hotel).  
 The Gorham Company (through W. Dan Lemeshka): *13 commemorative medals*.  
 Gosling, William (see Library of Congress).  
 Gottlesleben, Mrs. Elizabeth H.: *woman's coat, ca. 1891*.  
 Grady, John (see Chermayeff and Geismar Associates).  
 Grant, Chapman: *field glasses, pistol*.  
 Grant, David and Robert: *21 WW I posters*.  
 Grant, Robert (see Grant, David).  
 Great Britain, Government of: Royal Mint: (through C. L. Powell): *proof of 50 pence piece*.  
 Gregory, Rev. Edward Meeks: *child's stool, 1824*.  
 Griffiths, Mrs. David W.; Ruestow, Mrs. Paul; and Diety, Mrs. John S.: *7 women's fans*.  
 Grigaut, Mrs. Doris: *6 pieces porcelain and earthenware*.  
 Grimes, Harold M. (see Morse Brothers Machinery Co.).  
 Gross, Dorothy: *photograph of President Taft*.  
 Grum, Anna: *107 carnival glass pieces*.  
 Guerrera, Carmin: *quartz cylinder head*.  
 Guggenheimer, Mrs. Mary S.: *Indian basket*.  
 Gumm, Clark (see Interior, U.S. Department of the).  
 Haburchak, Robert J. (see Maryland, State of).  
 Hagen, Richard S.: *political campaign button and ribbon*.  
 Hamann, Ole (see United Nations).  
 Hamelly, Henry: *15 First-Day covers*.  
 Hamilton, Samuel M. V.: *bust of Samuel M. Vauclain*.  
 Hanley, Mrs. Hope A.: *painting of woman embroidering by Hughes*.  
 Hanson, Alex: *New Testament*.  
 Haring, Mrs. Grace: *2 horse-drawn cottonpickers*.  
 Hart, James A.: *balloon pilot badge*.  
 Harville, Mrs. Ruby Stallings: *overshot coverlet*.  
 Hawes, Dr. Lloyd E. (see Arnhold, Henry).  
 Hays, Fair: *sheep shears*.  
 Heath, Robert R. (see Carlisle Colonial Minute Men).  
 Hebert, Raymond J.: *brooch, necklace*.  
 Hebert, Mr. and Mrs. Raymond J.: *86 financial documents, 48 coins, 25 warrants*.  
 Hedges, Mrs. M. H.: *watch*.  
 Hedrick, Mrs. Ralph W.: *handwoven shawl, early 19th century*.  
 Heed, Ture: *newspaper, 1810*.  
 Henke, Mrs. Nancy W. (see White, Walter Rhoads, Children of).  
 Hergert, Gustav A.: *9 specimens from the Civilian Conservation Corps, ca. 1930*.  
 Higgins, John Arthur: *4 foreign banknotes*.  
 Higgins, Sigfried: *2 brake linings, 4 printing plates, thermosetting matrix, trade journal, article*.  
 Hill, Dr. Inez Thew: *2 bronze coins*.  
 Hillerman, Mrs. Barbara: *woman's hat, 1890-99*.

Hinton, Mrs. Harold B.: *woman's dress and cape*, 1965.

Hively, Mrs. Kay: *wooden model of house*.

Hodson, Mrs. Frank A.: *Centennial bandana*, 1876.

Homan, Bill: *invitation to battleship Wisconsin launching*, 1898.

Homolka, V. H. (see Veterans Administration).

Horjel, Nels (see Sweden, Government of).

Howell, Edgar M.: *Derringer replica; man's coat*, 1934.

Howland, Dr. Richard H.: *footstool*, 19th century; *2 dresses, 2 women's neckwear*, ca. 1910 (see also Conger, Mrs. Frederic).

Howlette, Mrs. Walter M.: *woman's coat*, 1927.

Howmedica, Inc. (through George J. Barenholtz): *6 prosthetic items*.

Hribsek, Rev. Aloysius: *7 cultural history specimens*.

Hruschka, Howard W.: *hand ice plow*.

Huber, Francis B. (see Brandt, Mrs. Amos, and Sons).

Huebner, A. W.: *camera*, ca. 1896; *2 glass negatives, 8 mm camera*.

Hughes, Mrs. Hugh R.: *4 diaries, 1909–12; personal accounting; photograph album of ships and ports*.

Hughes, Robert L. (through John L. Skinner): *poultry incubator*.

Hunley, Mrs. James G.: *hand-colored tintype, late 19th century*.

Hunter, Mrs. Myrtle Faulkner, and Carter, Mrs. Maude Faulkner: *woman's dress and shawl*.

Hurlburt, Olive E.: *quilted counterpane, late 18th century; cotton chemise*, 1858.

Husak, Mr. and Mrs. Jerry (see American Tropical Association).

Hutchinson, G. Evelyn: *735 items used during 1971 British postal strike*.

Illinois State University (through Dr. Harold Born): *4 physical science specimens*.

Inaugural Committee 1973 (through J. Willard Marriott): *125 Inaugural 1971 specimens*.

Interior, U.S. Department of the: Geological Survey (through Oscar Mueller): *4 type frames with cases, 3 cabinets, galley rack*. Bureau of Land Management (through Clark Gumm): *pantograph and instructions*. National Park Service (through Vera B. Craig): *ingrain carpet fragment*.

International Association of Professional Numismatists (through Catherine Bullova-Moore): *silver commemorative medal*.

International Fraternal Commemorative Society: *silver commemorative medal*.

Israel, Government of: Ministry of Posts: *11 First-Day covers*.

Jacobs, Mr. and Mrs. Ernest (through Mrs. Michael Gerhardt): *2 postcards, WW I*.

Jay, Peter: *robe worn by Chief Justice John Jay*.

Johnson, Mr. and Mrs. Charles E.: *teapot, cover, and creamer*, ca. 1812–14.

Jones, Mrs. Edward C.: *12 packages of needles, late 19th century*.

Jones, Msgt. Parmalee: *16 medals and decorations awarded to donor*.

Judaic Heritage Society: *8 silver commemorative medals*.

Juges, Robert L. (see Vtgaard, Stanley).

Julian, Margaret Current: *knitted shawl*.

Kabelac, Karl: *8 tobacco packets*.

Kamenetz, Dr. Herman L.: *pair of crutches, Civil War*.

Kaplan, Joseph: *vacuum tube*.

Kauffman, Mrs. Draper L.: *painting of George Washington by Jane Stuart*.

Katz, Mrs. Pessa Kaufman (through Mrs. Leon Schilt): *6 cupping glasses*.

Keegan, Kathleen (see Larkin, Helene A.).

Kemble, Harold E., Jr. (through Peggy Sawyer): *newspaper, 1773*.

Kennedy, John A.: *maroon and white shirt*.

Kennedy, Paul: *4 photographs*.

Kenney, Henry K.: *clasp knife*.

Kenny, Austin (see Washington Area Convention and Visitors Bureau).  
 Kermit Roosevelt and Associates, Inc. (see Roosevelt, Kermit, Jr.).  
 Kettler, Milton E.: *81 hand tools, wagon jack, steelyard, shovel, 6 kitchen implements, 3 harness-making tools, 2 traps, brick mold, ratchet trammel, candle mold, fireplace crane, spade.*  
 King, Mrs. Blance Elliot: *silver mug and sauce boat, 2 silver spurs.*  
 King, Mrs. Walter Hughey: *textile with labels.*  
 Kingsley, David J.: *camera, ca. 1950-54.*  
 Kistler, Lynton R.: *207 specimens relating to printing of book.*  
 Klapthor, Frank E.: *glass mug, ca. 1790; 8 textile specimens.*  
 Klebba, Robert (see United States Manufacturing Co.).  
 Klimkiewicz, W. J., and Wandycz, D. S.: *kerosene lamp and photograph of inventor.*  
 Klopfer, L. W.: *pie crimper.*  
 Klopsteg, Dr. Paul E.: *253 bows, arrows, and associated gear.*  
 Kompare, Anton: *painted egg, Taro cards.*  
 Korrow, Martin M.: *4 commemorative plates.*  
 Kramer, Mrs. Howard D.: *woman's wrap, ca. 1916.*  
 Kuhler, Otto: *31 etchings.*  
 Kuney, Jack (see Columbia Broadcasting System, Inc.).  
 Kuper, Theodore Fred (see Macondray, Mrs. Atherton).  
 LaBarge, Inc. (through R. F. Mohrman): *voicebak prosthesis.*  
 Lake, Dorothy O. (see Oviatt, Ruth A.).  
 Lake, Edmond: *newspaper, 1828; newspaper reprint, 1800.*  
 Land Transportation Fund, Smithsonian Institution: *6 railroad conductor's uniform items, brakeman's cap badge; 3-wheel handcar, ca. 1910.*  
 Langhoff, Mrs. Fred: *sheep shears.*  
 Larkin, Helene A. (through Kathleen Keegan): *woman's collar and 2 shirtwaists, ca. 1905-10.*  
 Lavalleye, Jacques (see Belgium, Government of).  
 Lawless, Mrs. Carole: *egg carton machine.*  
 League of Women Voters of the United States (through Nancy Thompson): *Equal Rights Amendment poster and bracelet.*  
 Leavitt, Mrs. Lena C.: *patent model of jobbing press.*  
 Lechleitner, Katherine M.: *525 naval history items.*  
 Lederer, Howard A.: *697 Warren G. Harding memorial stamps.*  
 Lehde, Mrs. Pendleton E.: *quilt top, crib cover.*  
 Leigh, Mr. and Mrs. James C.: *1,318 currency notes.*  
 Lemeshka, W. Dan (see the Gorham Co.).  
 Lenhoff, James W.: *specially cacheted commemorative cover.*  
 Lennan, Mrs. Bryant: *sword and scabbard, 1850.*  
 Lenox, Inc. (through Robert J. Sullivan): *annual issue plate "Woodland Wildlife"; limited edition plate, 1973.*  
 Lepman, Dr. Harry, Estate of: *broadside announcing antilynching rally (bequest).*  
 Lessing, John C. and Beatrice E.: *8 pressed-glass pieces.*  
 Leva, Mrs. Marx: *broadside, 1836.*  
 Library of Congress (through Nathan R. Einhorn): *29 political history papers.*  
 Welfare and Recreation Association (through William Gosling): *1,504 foreign covers and postage stamps.*  
 Licht, Dr. Sidney: *patent model of artificial leg.*  
 Liebhaver, Mr. and Mrs. Morris: *political campaign lapel button.*  
 Lightfoot, Judith (see National Organization for Women).  
 Lindquist, Harry L.: *1,734 postal specimens.*  
 Lipshutz, Florence and Robert (see Rudin, Eli H. and Miriam).  
 Long Fund, Smithsonian Institution: *hooked rug, 19th century.*



Looney, Charles T. G.: *drum calculator and instruction booklet, slide calculator.*

Lord, Mr. and Mrs. Jack: *404 specimens related to development of picture book.*

Lubin Harriet: *2 beaded bags.*

Ludington, Morris H.: *4 sheets of forged postage stamps.*

Luginbuhl, Mrs. Edna: *wooden souvenir postcard, 1904.*

MacCloskey, Gen. Monroe: *saber, scabbard, sword knot, and cover.*

Mace, Carl D.: *trap gun, 9 swords and scabbards.*

Mack, Allan: *rail bender, wrench, drill rack with sets, spike bar.*

Mack, Mrs. Marion: *document signed by Calvin Coolidge, 1926.*

Mack, Wilfred A.: *book New Practical Arithmetic, 1877.*

Macondray, Mrs. Atherton, and Children (through Theodore Fred Kuper): *Thomas Jefferson Memorial Foundation, Inc., bond.*

Madsen, T. W. (see Denmark, Government of).

Maeder, Edward F.: *bustle pattern and copy, ca, 1873; Mary Todd Lincoln paper doll, ca. 1933.*

Maine, University of (see Edwards, Carolyn H., Estate of).

Manning, William H., Jr.: *silver commemorative medal.*

Marden, Jon: *copper engraved plate.*

Marriott, J. Willard (see Inaugural Committee 1973).

Marxen, Karl W.: *calendar watch.*

Maryland, State of: Department of Transportation (through Robert J. Haburchak): *2 license plates with handicapped insignia.*

Maxwell, James and Jean: *tintype.*

Maxwell Fund, Mary E., Smithsonian Institution: *ceramic sundial.*

Mayo, Edith P.: *13 anti-Vietnam War "Mayday" specimens; 19 first National Women's Political Caucus Convention items.*

Mayo, Henry C.: *8 anti-Vietnam War demonstration specimens; 13 "Impeach Nixon" rally specimens.*

McCandless, James C.: *clock.*

McCormick, Bill and Glenna (through Byron E. Schumacher): *hassock commemorating first man on the moon.*

McCormick, Edward J.: *11 medals and badges, in memory of William H. Nash.*

McDonald, George J.: *worktable.*

McLaren, Richard H.: *photograph of Postmaster and his assistants, 1895.*

McMenamin, Brigid: *woman's shoes, boy's shirt, girl's trousers and stockings, ca. 1970.*

Meggars, Dr. Betty: *3 commemorative wooden nickels (see also Evans, Dr. Clifford).*

Melder, Dr. Keith E.: *14 anti-Vietnam War protest materials; 94 McGovern for President 1972 campaign specimens; Senator Javits 1968 campaign bumper sticker and button.*

Mendenhall, H. E.: *cathode ray tube.*

Michalowicz, Mrs. Joseph C.: *handwoven towel.*

Middleton, Mrs. Yevonde (through Dr. Spencer): *3 color photographs.*

Miles, Mrs. Alice M.: *stereographic card; barbed wire fence stretcher.*

Miller, Mrs. Caroline Benes: *8 cultural history specimens.*

Miller, J. Jefferson, II: *basket and stand, ca. 1810.*

Miller, Dr. John V.: *stamped envelope.*

Miller, Hon. Midge: *11 political campaign items.*

Mohrman, R. F. (see LaBarge, Inc.).

Moline, Russell H. (see Swedish Retirement Association).

Monaco, Government of (through H. Chiavassa): *74 mint postage stamps, 2 mint souvenir sheets.*

Moore, Earl E.: *9 covers, 19th century.*

Morison, Gordon S. (see Postal Service, U.S.).

Morse Brothers Machinery Co. (through Harold M. Grimes): *16 mining catalogues.*

Moulton, James M.: *photograph of President and Mrs. Benjamin Harrison.*

Mueller, Oscar (see Interior, U.S. Department of the).

Murray, Mrs. Anne W.: *12 textile specimens; Italian cover, 2 used postage stamps, Great Britain; cast iron mirror frame; earthenware bowl.*

Musser, Olive: *soap doll.*

Muzzrole, Richard: *journal box cover, ca. 1875.*

Myers, Carol A. (see Weil, Arthur P.).

Nash, George H.: *cutting tool.*

National Association of Manufacturers: *106 films, series called "Industry on Parade."*

National Commemorative Society: *4 silver commemorative medals.*

National Museum of Transport (through Dr. John P. Roberts): *horse-drawn truck, ca. 1900.*

National Organization for Women (through Judith Lightfoot): *official logo sign of NOW.*

National Savings and Trust Co. (see Edwards, Carolyn H., Estate of).

National Trust for Historic Preservation (through Letitia Galbraith): *woman's dress, ca. 1837.*

Neinken, Edward: *13 segments of silver pieces, France; German Renaissance model for medal; trial for medal, 1777; 5 gold coins and case.*

Neinken, Mr. and Mrs. Mortimer L.: *2 silver medals.*

Nemanich, J. N.: *4 convention badges, flag with mourning ribbons.*

Nergaard, K. (see Norway, Government of).

*Edgar Brown.*

New Hampshire Historical Society (through John F. Page): *purse owned by Mrs. Calvin Coolidge.*

New York News (through Mike O'Neill): *19 pieces of photographic equipment and accessories.*

New York Yankee and Schwall, L. L.: *8 objects retrieved from the dismantlement of Yankee Stadium.*

New Zealand, Government of: *22 mint postage stamps.*

Newell, Ben A., and Turnbull, Jack: *sheep shears.*

Newell, Mr. and Mrs. Sterling: *Jacquard double-woven coverlet, in memory of Edgar Brown.*

Nicholas, Bob: *United War-Work campaign poster.*

Norman Norell, Inc. (through Gustave Tassell): *2 dresses, skirt, blouse, jacket.*

Norway, Government of (through K. Nergaard): *26 postal specimens.*

Numismaticos Colombianos (through Alberto Lozano Villegas): *bronze commemorative plaque.*

Ockershausen, Marie F. and Carla H.: *shawl, souvenir ribbon.*

Off Our Backs (through Anne Williams): *13 women's news journals.*

O'Hara, Hazel: *5 religious carvings.*

Oleg Cassini, Inc. (through Melvyn Setto): *5 dresses worn by Mrs. John F. Kennedy.*

Oliver, Smith H.: *tape cassette "I Heard Lincoln That Day."*

Olsen, Cynthia K.: *45-rpm record.*

O'Neill, Mike (see New York News).

Orr, E. P.: *sample of barbed wire.*

Orsinger, Dr. William H.: *11 medical science specimens.*

Ortman, Mrs. Elizabeth: *sheet music, badge, chevron, medal.*

Oviatt, Ruth A., and Lake, Mrs. Dorothy O.: *coverlet, crocheted curtains.*

Page, Curtis C.: 421 *German emergency paper currencies*.  
 Page, John F. (see New Hampshire Historical Society).  
 Palfrey, Mrs. Clochette R. (see Roosevelt, Kermit, Jr.).  
 Palmer, Mrs. Polly L.: *quilt top*.  
 Pascal, Mrs. Edith Chidakel: *Presidential presentation watch, in memory of Harry S. Chidakel*.  
 Patterson, Mrs. Jefferson: 4 *items of apparel, reducing device*.  
 Paul, Gabe (see New York Yankees).  
 Petersilia, Martin J. A.: 24 *anti-Vietnam War specimens*.  
 Petersilia, Patricia, and Egan, Peggy: 9 *specimens concerning Concert for Peace, 1973*.  
 Peyton, Bernard: 20 *postage stamps*.  
 Phillips, Mr. and Mrs. Lionel: *glazed dish, 1973*.  
 Pineau, Capt. Roger: 7 *commercially used postal covers*.  
 Pinnell, Beth: *commemorative medal*.  
 Pitney-Bowes, Inc., Philately Fund, Smithsonian Institution: 17 *publications, documents, and photographs relating to first postal canceling machine*.  
 Place, Lucille (see Cherry, Hon. Gwendolyn S.).  
 Pliako, Alan L.: 3 *anti-war pamphlets*.  
 Pohl, Michael J. (see Bradley, Hon. Thomas).  
 Polonus Philatelic Society (through Chester A. Schafer): *bronze commemorative medal*.  
 Poole, Katherine R.: 2 *paper dolls; 3 textile specimens*.  
 Pope, Charles: *Colt rifle, rifle barrel*.  
 Porter, Mr. and Mrs. Henry: *music box and table*.  
 Postal Service, U.S. (through Gordon C. Morison): 111 *postage stamps and stationery*.  
 Powell, C. L. (see Great Britain, Government of).  
 Pratt, Mrs. John B.: *Norwegian bed cover*.  
 Praznik, Rev. Rudolph A.: *altar crucifix*.  
 Presidential Art Medals, Inc.: 4 *bronze and 1 silver medal*.  
 Prevost, Dr. John V.: 11 *political campaign postcards, 1920*.  
 Prisk, Mr. and Mrs. Charles W.: 6 *textile specimens*.  
 Pugsley, Edwin: *indexing device; 2 electric clocks*.  
 Putzel, Mr. and Mrs. Henry, Jr.: 7 *items of woman's apparel*.  
 Quick, Virginia Monroe: *pewter plate*.  
 Ransom, Mrs. Frieda: *Nazi dagger, scabbard, and carrying strap, 1937*.  
 Reeder, Ray K., Jr. (see Shenango China).  
 Rehder, Dr. Harald A.: 2 *postal covers*.  
 Reynolds, John and James W.: *bumper sticker referring to impeachment of President Nixon*.  
 Rhodes, James Robert: *cross and chain*.  
 Rice, Pierce G.: *photograph of engine that drew President Grant's funeral train*.  
 Rice Hotel (through Robert Gordon): *podium used at first National Women's Political Caucus Convention*.  
 Richardson, Dorothy: 2 *commercial postal covers*.  
 Rila, Carter: *cotton Navy jumper, 1898*.  
 Rinsland, George: *broadside, ca. 1875; handkerchief*.  
 Ripley, Dr. S. Dillon: *commemorative medal* (see also Bradley, Frederick).  
 Robertine, Sister (see St. Peter's School).  
 Roberts, Dr. John P. (see National Museum of Transport).  
 Robinson, Edwin K.: *belt buckle, framed verse, greeting cards, postcard; woman's sleeves, button hook; box of 20 pen points, telephone index; 5 photographs; bowl, Germany; pin cube, crochet hook*.  
 Rockhold, R. H. (see Collier County Semicentennial Commission, Inc.).



Rodezno, Juan Antonio: *100 First-Day covers*.  
 Roe, Jerry: *2 political posters, 45-rpm record*.  
 Rogers, Mr. and Mrs. Charles E.: *14 fireplace furnishing items*.  
 Rogoff, Dr. Joseph B.: *5 medical science specimens*.  
 Roosevelt, J. Willard (see Roosevelt, Kermit, Jr.).  
 Roosevelt, Kermit, Jr.; Roosevelt, J. Willard; and Palfrey, Mrs. Clochette R.  
 (through Kermit Roosevelt and Associates, Inc.): *29 books, pamphlets, and  
 manuscripts relating to President Theodore Roosevelt*.  
 Ross, Mrs. Eve K.: *NRA consumer window sticker*.  
 Rothschild, Mr. and Mrs. Louis S.: *2 biscuit boxes, ca. 1870*.  
 Rowan, William (see Smithsonian Institution).  
 Rowdybush, C. R.: *46 naval uniform items*.  
 Rowe-Craig, Mrs. Isabel (see St. Margaret's Church Sewing Group).  
 Ruckelshaus, Hon. William D.: *gold commemorative bowl*.  
 Rudin, Eli H. and Miriam; Altman, Mrs. Belle Rudin and Maybelle;  
 Lipshutz, Florence and Robert; and Rudin, Hymen and Sarah: *equipment  
 and supplies used in custom tailor shop, in memory of Barnet and Bessie  
 Rudin*.  
 Ruestow, Mrs. Paul (see Griffiths, Mrs. David W.).  
 Rutenber, E. R.: *engine, 1901*.  
 Rynearson, Paul: *coin, A.D. 920*.  
 Saad, Mrs. Charlotte R.: *brass bullet mold*.  
 Saegmuller, Mrs. Alma A.: *base range finder in case with component parts,  
 in memory of Frederick Bertholdt Saegmuller*.  
 St. Margaret's Church Sewing Group (through Mrs. Isabel Rowe-Craig): *lace  
 shawl*.  
 St. Peter's School (through Sister Robertine): *5 specimens from 1904 World's  
 Fair*.  
 Saks, Mrs. Julien M.: *lantern*.  
 Salm, Arthur: *74 postal time tables and rate charts*.  
 Salmon, Mrs. Maurice E.: *2 Jiffy band tools*.  
 Salo, Mrs. P. K. R.: *sextant*.  
 Sampson, Squire: *1973 Inaugural license plate used by Redskins*.  
 Sanford, Mrs. Wayland (through Mrs. Dean Acheson): *linen damask  
 tablecloth*.  
 Sawyer, Peggy: *letter from Sargent Shriver's press secretary (see also Kemble,  
 Harold E., Jr.)*.  
 Schafer, Chester A. (see Polonus Philatelic Society).  
 Schallert, Mrs. Ruth F. (see Smithsonian Institution).  
 Schiffman, Edward Gottlieb: *porcelain dish, ca. 1735*.  
 Schilt, Mrs. Leon (see Katz, Mrs. Pessa Kaufman).  
 Schoen, Mrs. Edwin A.: *silk quilt*.  
 Schorr, Sam (see Vietnam Veterans Against the War).  
 Schroeter, John C. (see Brandt, Mrs. Amos, and Sons).  
 Schumacher, Byron E. (see McCormick, Bill and Glenna).  
 Schwall, L. L. (see New York Yankees).  
 Scoville, Mrs. John A.: *lady's wrap*.  
 Seibold, David: *Chinese silver dollar, 1853*.  
 Sendel-Iturbide, Jorge: *calendar and descriptive sheet*.  
 Setto, Melvyn (see Oleg Cassini, Inc.)  
 Shafer, Mrs. Betty Lou: *letter dated March 29, 1776*.  
 Shank, Dr. Russell (see Smithsonian Institution).  
 Shapiro, Sanford (see Treasury, U.S. Department of the).  
 Shattuck, Mrs. Anna P.: *2 volumes Arctic Explorations, 1856; 3 photographs*.  
 Shaver Elsie, *documents and objects relating to the career of Dorothy Shaver,  
 in memory of Dorothy Shaver*.

Shenango China (through Ray K. Reeder, Jr.): *picture album, press kit.*

Shepard, Mrs. Donald D.: *drawings of John Paul Jones and of Benjamin Franklin with receipt, 1810.*

Showley, Roger: *bumper sticker and button.*

Shutter, Mrs. Gordon: *Japanese porcelain cup, saucer, and plate.*

Sieh, John: *vase, ca. 1972.*

Simpkin, Georgina: *First-Day cover.*

Skinner, John L. (see Hughes, Robert L.).

Slocum, John J.: *silver coin.*

Smith, Mrs. Arthur G.: *10 documents and wool sweater, WW I.*

Smithsonian Institution: (see also the following Funds: Florence Brevoort Eickemeyer, Folk Art, Friends of Music at the Smithsonian, Gardner-Miller, Anne Golovin, Land Transportation, Long, Mary E. Maxwell, Pitney-Bowes, Inc. Philately).

Collected: *book State of New York, a Memorial to Theodore Roosevelt. 1919; satirical briefcase on Watergate; 2 seals used at 1973 Inaugural Ball*

Found in the Collections: *201 political specimens; 11 photography specimens; 3 engineering specimens; collection of fire extinguishers, helmets, sprinklers, harness, fire and locomotive patent models; bull tethering ball; 15 textile specimens.* Libraries: *organization chart of French Government, 1775; (through Dr. Russell Shank): 318 postage stamps.*

Museum Shops (through William Rowan): *309 postage stamps and covers.*

National Air and Space Museum (through Frederick C. Durant III): *7 fabric samples.* National Museum of Natural History: Department of Botany (through Mrs. Ruth F. Schallert): *1 cover with one-cent stamp, 1875.* Oceanographic Sorting Center (through Dr. H. A. Fehlman): *17 pieces receiving equipment.* Productivity Hall: *2 firemen's helmets.* Purchased: *glass case bottle, 1788; tower clock; star atlas, 1835; cash register; lithograph of mission; chair from U.S. Senate; 4 wooden kitchen boxes; 7 political history items; 1 Meissen plate, ca. 1725 (see also Arnhold, Henry); sundial; 17 early magazines; Jacquard woven coverlet; 4 books, ca. 1775; 2 books; 3 pamphlets and old map; 33 cultural history items; 6 cultural history items; 6 advertising specimens, 1884, advertisement for EXPO 1876; 4 pamphlets; book The Snare Broken, 1766; book The Case of Great Britain and America, Addressed to the King and Both Houses of Parliament, 1769; book American Stamp Act, newspaper; 4 newspapers, 1770s; pamphlet; 6 cannon-ball gauges and inspector's ring; printed handkerchief, ca. 1800; four-shaft counterbalance loom, 6 pieces of drapery fabric, theater curtain, window blind; iron casting of eagle, barber pole; original engraving republished from original Paul Revere plate; map, 1775; 2 political history books; damask tablecloth, 1892; broadside poster, ca. 1890; sampler, 1788; handwritten log and ship's sail plan; collection of scientific apparatus; dower chest; needle and bobbin container, ca. 1910; Swedish bismar, 18th century; book by Jesiah Quincy, 1774; 2 microscopes; 8 fabric specimens; wagon stove; painting; 4 wax medical figures; Whig banner, 4 admission tickets, 1876, letter and 2 plat mats; antique railroad map; engraving and lithograph; trunk poster; laundry wagon, ca. 1890; oil painting; German-American imprint; 195 sports items; Theodolite; 25 stereo scenes; 2 panels of linen and wool; 77 dry goods advertisements and calling cards, late 19th century; facsimile of map of 1500; lithograph;*

Office of the Registrar: *779 postage stamps and cover.*

Smythe, Mrs. George W.: *woman's dress and purse, 1922.*

Snider, Charles S.: *15 political campaign specimens.*

Snow, Robert R. (see Treasury, U.S. Department of the).

Societe Commemorative de Femmes Celebres: *3 silver medals.*

Soher, Lorraine J. and Norma A.: *silk slumber throw, 1888.*  
 Southern Appalachian Crafts: *4 corn-husk dolls.*  
 Spalding Hobart A.: *directions for setting up and regulating clock.*  
 Sparks, Bob: *postal cover.*  
 Spencer, Dr. (see Middleton, Mrs. Yevonde).  
 Spencer, Thomas D.: *3 sundicators in cases.*  
 Sperry, L. P., Jr. (see Waterbury Companies, Inc.).  
 Springer, Ethel: *bell pull.*  
 Stack's: *17 foreign medals; bronze token; 339 ancient coins; 11 U.S. financial documents.*  
 Stark, John: *3 postal covers.*  
 Stark, Ronald C.: *6 photographs.*  
 Steinberg, Gilbert (through George Fuld): *silver counter.*  
 Steinway and Sons: *grand piano, 1857; grand piano, 1892.*  
 Stetson, Mrs. Robert Southworth: *New Testament, 1852.*  
 Stevens, Harlan: *miner's cap, lamp, photographs.*  
 Stine, Walter R., Jr., *Oliver Standard Visable Writer.*  
 Stinemetz, Susan: *graphite crucible.*  
 Strach, Marion Babette: *man's coat, ca. 1850, in memory of Mr. and Mrs. Hugo Benzinger.*  
 Strekal, J.: *convention badge.*  
 Strothman, Roy: *Thanksgiving menu from USS Georgia, 1918.*  
 Stuntz, Mr. and Mrs. Mayo S.: *photographic album.*  
 Sullivan, Robert J. (see Lenox, Inc.)  
 Sustersic, Stanley: *Slovene-American cookie.*  
 Sutherland, Mrs. William A.: *4 ceramic and glass specimens.*  
 Sweden, Government of: *399 postal specimens; (through Nels Horjel): 6 First-Day covers.*  
 Swedish Retirement Association (through Russell H. Moline): *Swedish flag, 1854.*  
 Syz, Dr. Hans: *7 pieces of Meissen porcelain, 18th century (see also Arnhold, Henry).*  
 Tassell, Gustave (see Norman Norell, Inc.)  
 Taveau, Marie: *2 shawls, 19th century.*  
 Taylor, Mrs. E. Frank: *broadsword, ca. 1740.*  
 Taylor, Fred H.: *16 nitrate negatives, 4 yachting books.*  
 Thayn, Mrs. Florian H. (see Architect of the Capitol).  
 Thompson, Dr. George Raynor: *transceiver.*  
 Thompson, Mary (see League of Women Voters of the United States).  
 Tomlinson, Evelyn Rowe: *Melo-Pean organ, in memory of Neille O. Rowe.*  
 Torre, Dr. Andreina: *Meissen tea bowl, ca. 1715-27.*  
 Treasury, U.S. Department of the: Bureau of Alcohol, Tobacco and Firearms: *four-barreled pistol. Bureau of Customs: 2 pistols with holster and 2 magazines; 2 rifles; 2 submachine guns with magazine; 139 coins and medals. Bureau of Engraving and Printing (through James Conlon): 1,409 plate proof sheets. Internal Revenue Service: 11 firearms, 5 accessories; (through Donald C. Alexander): 3,000 U.S. stamps for exporting spirits; 897 marijuana order forms, 92,950 narcotic strip stamps; (through Robert Tolliver): reel of magnetic tape. Bureau of the Mint: 2 Eisenhower silver dollars. Property Management Division (through Sanford Shapiro): illegal whiskey still. Secret Service (through Robert R. Snow): 3 gold commemorative pieces.*  
 Trobaugh, Kenneth: *18 tokens, Civil War; 14 identification tags, Civil War.*  
 Turek, Mr. and Mrs. Frank: *4 recordings, painted wooden plate, convention badge.*  
 Turnbull, Jack (see Newell, Ben A.)



Turner, Mina: *portrait of Thomas Edison by Charles Fox, 35 photographs.*  
 Tweedy, Mrs. Marjorie Alice Loud: *2 ballpoint pens, fountain marker, and documentary material.*  
 United Nations: Postal Administration (through Ole Hamann) *20 mint sheets of U.N. postage stamps.*  
 United States Manufacturing Co. (through Robert Klebba): *3 paraplegic braces.*  
 Utgaard, Stanley (through Robert L. Juges): *bloodtesting machine.*  
 Van Atta, G.R.: *14 cartridges.*  
 Van Horn, Mr. and Mrs. James: *miner's hammer.*  
 Velek, John, Estate of (through Mrs. John Velek): *804 postage stamps (bequest).*  
 Vera Maxwell, Inc.: *6 woman's apparel items.*  
 Veterans Administration (through James C. Gaskin): *violin with 2 bows (through V. H. Homolka): Royal typewriter.*  
 Vietnam Veterans Against the War (through Sam Schorr): *9 items concerning protest activities, 1971.*  
 Vi-Jon Labs, Inc.: *2 political campaign novelty items.*  
 Villegas, Alberto Lozano (see Numismaticos Colombianos).  
 Vimpany, Joyce Prescott, Estate of (through Daniel A. Vimpany): *porcelain plate, 1895-99 (bequest).*  
 Von Erdberg, Mrs. Xavier: *plow model.*  
 Vosloh, Lynn W.: *collection of 60 anti-Vietnam War propaganda materials.*  
 Waldman, Niel (see Columbia Broadcasting System, Inc.):  
 Wallace, Hon. George C.: *bulletproof campaign podium.*  
 Wanamaker, Donald: *folding view camera and 6 double plate holders with case.*  
 Wandycz, D. S. (see Klimkiewicz, W. J.).  
 Wang, S. P. (see China, Government of the Republic of).  
 Ware, Mr. and Mrs. George W.: *14 porcelain pieces, 18th century.*  
 Warner, Mrs. Evelyn S.: *17 letters and papers, sheath knife, and buttons, Civil War.*  
 Washington Area Convention and Visitors Bureau (through Austin Kenny and Mrs. Candy Duncan): *Cherry Blossom robe.*  
 Washington-Baltimore Newspaper Guild: *addressograph machine.*  
 Waterbury Companies, Inc. (through L. P. Sperry, Jr.): *6 naval officers uniform items.*  
 Watkins, C. Malcolm: *3 vases, 19th century.*  
 Watkins, Mrs. C. Malcolm: *129 items relating to dining.*  
 Weil, Arthur R. (through Carol A. Myers): *woman's dress, ca. 1969.*  
 Weinberg, R. J.: *license plate, 1932.*  
 Welch, Mrs. Eleanor R.: *pocket watch.*  
 Welcheck, Lillian: *wood frame.*  
 Wells, J. R.: *railroad watch.*  
 Welsh, Peter: *political publication.*  
 Wetmore, Alexander: *facsimile of broadside.*  
 Wheaton Glass: *decanter.*  
 White, John H., Jr.: *streetcar controller handle.*  
 White, Lt. Robert LeAlan: *295 political campaign items.*  
 White, Walter Rhoads, Children of (through Mrs. Nancy W. Henke): *man's breeches, 1700-99.*  
 The White House (through Clement Conger): *fire screen, silver ship center pieces, mirror, quilt (deposit).*  
 Whiting, William J., Estate of (through Paul Conger): *goniometer, 4 microscopes (bequest) (see also Conger, Paul).*  
 Wiley, Dr. Bert C.: *Elliott machine with plastic hood.*

Williams, Ames W.: *2 railroad signs*.  
 Williams, Anne (see Off Our Backs).  
 Williams, Mrs. Murat (see Cunningham, Peter F.).  
 Williams, Stephen: *45 WW II posters*.  
 Willner, Mrs. Vivien: *17 uniform items, WW II*.  
 Wilson, Mrs. Jack: *pocket Bible; signature card and publicity handout for Dr. Mary E. Walker*.  
 Winter, Frank H.: *2 political campaign broadsides*.  
 Witze, Claude: *commemorative embroidery*.  
 Women's City Club: *addressograph machine*.  
 Wood, Mrs. John S.: *3 shepherd's flutes*.  
 Wylie, Donald P.: *woman's coat, 1900-24*.  
 Wynyard, Dr. Martin: *19 porcelain pieces, 18th century*.  
 Wyss, Mrs. Herman: *cheese press and curd break*.  
 Yeatman, Mrs. Philip W.: *scales, weight*.  
 Yerich, Albert: *sausage stuffer*.

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American Ornithologists Union: *the records of the Union*.  
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## SMITHSONIAN INSTITUTION LIBRARIES

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Arnold, Marjorie G.: *A Treasury of the Blues*, edited by W. C. Handy.  
 New York, 1949.  
 Baldwin, Mrs. Theodore, III: *Notes Taken During a Tour Through Great Britain, Ireland, Holland, Belgium and the Northeast Part of France, and a Residence of Three Months at Paris, 1818-19*, by William M. Meredith.  
 (original manuscript)

- Battison, Edward A.: *The Collector's Dictionary of Clocks*. South Brunswick, N.J., [1965? c. 1964].
- Boorstin, Daniel J.: *The Americans; the Democratic Experience*, by Daniel J. Boorstin. New York [1973].
- Burdeau, Howard B.: *The Eruption of Pelée; a Summary and Discussion of the Phenomena and their Sequels*. Philadelphia, 1908.
- Clarke, J. F. Gates: A collection of books on natural history, chiefly entomology.
- Conger, Paul (executor of the estate of William Whiting): A collection of scientific and engineering books and journals from the estate of William Whiting.
- Desautels, Paul E.: *Traité de Minéralogie*, by René Just Haüy. Paris, 1822–23. 4 vols. and atlas.
- Floyd, Picot B.: *Dictionnaire technologique, ou nouveau dictionnaire universel des arts et métiers et de l'économie*. Bruxelles, 1829–1834. 11 vols.
- Gerstman, George H.: *Official Gazette of the U.S. Patent Office, 1856–1966*.
- Grant, Felix: A collection of books on jazz history and several volumes of the journal *Downbeat*.
- Hansen, Kenneth: *The Cherokee Singing Book*. Boston, 1846.
- Hoffman, Mrs. Claire Giannini: *Biography of A Bank; The Story of the Bank of America N.T. & S.A.*, by Marquis James and Bessie Rowland James. New York, 1954.
- The National Geographic Society: A collection of approximately 300 books.
- Ohgs, Tetsuo, President, Shogakukan: *Encyclopedia Japonica*. Tokyo, 1967–72. 23 vols.
- Robinson, Edward: *Collecting Old Glass — English and Irish*, by J. H. Yoxall. New York, 1916. *Comparative Values of Patterned Glass*, by Caurtman G. House. Medina, New York, 1936. *The Quadrupeds of North America*, by John James Audubon. 1849.
- Squadron-Signal Publications: A collection of all their currently in-print books.
- Time, Inc.: A complete set of *Life*.
- U.S. National Institutes of Health: A collection of books on zoology and animal behavior.

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